

# Do Motivated Teachers Enhance Students' Learning? Protocol for a Scoping Review of Evidence of the Effects of Teachers' Intrinsic Motivation on Student Achievement

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## ABSTRACT

**Background:** Educational literature emphasizes teachers' intrinsic motivation as a critical aspect of student performance. However, the variety of interpretations, operational definitions, measures, and conceptual frameworks used to investigate this construct makes determining the extent of the impact of teachers' intrinsic motivation on student outcomes difficult. As a result, the purpose of this scoping review, which is framed in the Self-determination Theory, is to collect, synthesize, and map existing quantitative evidence about the effects of teachers' intrinsic motivation on students' learning and other educational outcomes.

**Methods/Design:** Following the PRISMA-ScR guidelines, the review will first focus on empirical sources and quantitative studies that address the concept of intrinsic motivation as the result of the fulfillment the psychological needs of autonomy, competence, and relatedness; second, an inventory of operational definitions, instruments, measures, and analysis techniques used to explore the relationship between teacher motivation and student learning outcomes will be developed; and, third, the quality of the evidence reported will be assessed.

**Discussion:** Findings of this review will contribute to a better understanding of the impact of socioemotional factors on students' learning and achievement, and will provide educational practitioners, researchers, and policymakers with useful information to make informed decisions.

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*Keywords:* intrinsic motivation, self-determination theory, teacher, student achievement, scoping review protocol, autonomy, competence, relatedness.

## 1. Background

The educational literature has recognized that teachers are one of the most important factors in student learning (Metcalf & Game, 2006; Valerio, 2012), and whose motivation or demotivation play a pivotal role in how students engage and embrace the educational experience for optimal achievement in the classroom (Bong & Skaalvik, 2003; Sheldrake et al., 2017). A demotivated teacher is more likely to be absent from work or to abandon the

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teaching profession altogether. It is estimated that around the world, teacher absenteeism ranges from 11 to 30 percent at the primary school level (Transparency International, 2013), and that between 40 to 50 percent of teachers will drop out of the profession within the first five years of teaching (Higgins & Goodall, 2021; Karsenti & Collin, 2013; Loewus, 2021). This substantially reduces students' learning time, with severe consequences for their educational development and attainment—particularly for minority students or of low socioeconomic status (Abadzi, 2007; Bugg Conradson, 2021), and sap the resources of already underfunded educational systems.

In developing countries, where the problem is more prevalent, some 25 percent of the education budget allocated to primary education is lost to teacher absenteeism (Lee et al., 2015; Msosa, 2020; Transparency International, 2013). This situation has led some countries to implementing pecuniary incentives to recruit and retain high-quality classroom teachers, and to motivate them to improve students' learning (Duflo et al., 2012; Muralidharan, 2012; UNESCO-IICBA, 2017). However, research has shown that using pecuniary incentives to get teachers to work is not sustained in the long run and that removing them can actually have a negative impact on students' learning and achievement (Jinnai, 2016; Visaria et al., 2016).

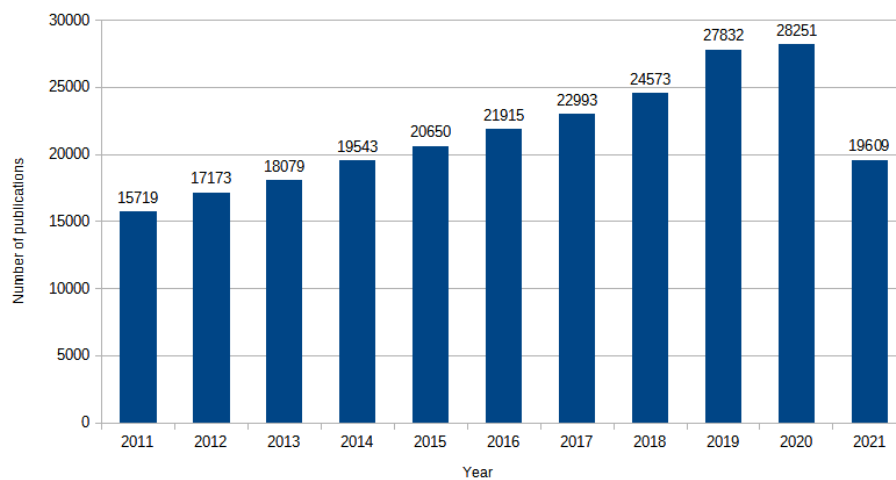
The realization that motivation is a key factor in the learning process has contributed to the emergence of the Self-determination Theory (SDT) as one of the most prominent theoretical frameworks for understanding how motivation operates in educational settings, its main psychological drivers, and the contextual factors that foster or hinder it (Deci & Ryan, 1985; Ryan & Deci, 2000a, 2018). In the context of SDT, intrinsic motivation is defined as the “doing of an activity for its inherent satisfactions rather than for some separate consequence” or as “the inherent tendency to seek out novelty and challenges” (Ryan & Deci, 2000b, p. 56). SDT posits that intrinsic motivation is innate and dependent on the satisfaction of three psychological needs: competence (sense of efficacy and opportunity to exercise and express one's capabilities), autonomy (self-direction and personal support in initiating and regulating one's own behavior), and relatedness (establishing community links with a sense of care and respect) (Ryan & Deci, 2000a). When an individual is intrinsically motivated, they are more likely to find their work enjoyable and satisfying and perform better, without the need of external rewards to perform tasks. (Deci & Ryan, 1985; Ryan & Deci, 2000a, 2018).

The concept of intrinsic motivation has received a great amount of attention in the educational research community. In the last decade alone, about 230,000 articles, conference papers, and books, on intrinsic motivation have been published (Figure), and they show a general conviction that intrinsically motivated teachers can be an important driver of among others: students' learning, levels of self-esteem, and motivation (Bishay, 1996; Metcalfe & Game, 2006; Sheldrake et al., 2017; Valerio, 2012).

Motivated teachers are also reported to be instrumental in the development of classroom environments conducive to increased learning and motivation by encouraging students' autonomy and choice (Govorova et al., 2020; Lam et al., 2009), which in turn feeds back to maintain higher levels of teacher motivation (Lam et al., 2009; Mahler et al., 2018; Ryan & Deci, 2000a).

However, the growing interest in SDT and its related construct of intrinsic motivation among researchers has resulted in an abundance of interpretations, operational definitions, measures, instruments, and conceptual frameworks, making it difficult to assess the extent to which teachers' intrinsic motivation affects students' outcomes (Keller et al., 2016; Slemp et al., 2020). For instance, it is common to find studies that use different terms to describe the same phenomenon (Neves de Jesus & Lens, 2005) or use the term “intrinsic motivation” interchangeably as a synonym of passion, enjoyment, self-efficacy, enthusiasm, or satisfaction (Honicke & Broadbent, 2016; Keller et al., 2016; Mahler et al., 2018; Ruiz-Alfonso & León, 2016)

**Figure 1.** Number of peer-reviewed articles, conference papers, and books on intrinsic motivation published in the last decade (created by the authors with data from Semantic Scholar).



Another major challenge in the study of intrinsic motivation is that much of the research on this area has been largely descriptive and anecdotal, in the form of personal accounts, observations, or case studies (Brookhart, 2012; Wen-ying & Xi, 2016): while empirical research has not received much attention from researchers and practitioners (Alamer, 2021), and thus it remains uncertain to what extent, if at all, teacher motivation affects students' learning and achievement. Previous reviews have concentrated on mapping and inventorying the various perspectives and constructs describing the emotions associated with teachers' intrinsic motivation (Han & Yin, 2016; Ng & Ng, 2015; Wen-ying & Xi, 2016, 2016), assessing the impact of students' intrinsic motivation on their own learning (Taylor et al., 2014); or assessing the impact of intrinsic motivation on teacher-related outcomes such as satisfaction, well-being, autonomy, or burnout (Slemp et al., 2020); but reviews examining the empirical evidence of teachers' intrinsic motivation on students' learning and achievement are still lacking.

This scoping review, therefore, aims to collect, synthesize, and map existing quantitative evidence about the effects of teachers' intrinsic motivation on students' outcomes and identify potential gaps where further research can be pursued. To achieve this goal, the review will focus on three major tasks: first, searching and evaluating primary empirical sources that refer to the concept of intrinsic motivation as the result of the fulfillment the basic psychological needs of autonomy, competence, and relatedness, as proposed by Deci and Ryan (Deci & Ryan, 1985; Ryan & Deci, 2000b, 2018) ; secondly, drawing up an inventory of operational definitions, instruments, and measures, and analytical techniques used by researchers to explore the relationship between teachers' intrinsic motivation and students' learning outcomes; and, thirdly, evaluating the quality of the reported evidence.

## 2. Methods/Design

### 2.1 Protocol design

The methodological approach of this review is known as a scoping review. The purpose of a scoping review is to map the existing literature in a given field and assess its extent and range, and the quality of its evidence (Arksey & O'Malley, 2005; Aromataris & Munn, 2020; Munn et al., 2018) and to clarify and delineate key concepts or definitions (Anderson et al., 2008;

Munn et al., 2018). Additionally, scoping reviews can be helpful in detecting and analyzing gaps in a body of knowledge and existing literature. Hence, scoping reviews can contribute to a rapid review of the evidence in emerging fields or topics (Munn et al., 2018). The stages of this review include: (1) a definition of the key research questions and objectives (2) the identification of published quantitative studies; (3) the presentation of a selection of studies that meet the inclusion criteria (4) the extraction and critical appraisal of evidence and data; and (5) the categorization, synthesis, and dissemination of the results and their implications for education policy and education practices. This protocol follows the Preferred Reporting Items for Systematic Reviews and Meta-Analysis for Scoping Reviews (PRISMA-ScR) to enhance methodological and reporting quality (Liberati et al., 2009).

## **2.2 Stage one: research questions and the objectives of the review**

The main purpose of this scoping review is to identify, map, evaluate, and synthesize the existing empirical literature about teachers' intrinsic motivation and its impact on students' outcomes. To achieve this purpose, the following research questions will guide this study:

- a. What empirical evidence is there about the effects of teachers' intrinsic motivation on students' outcomes?
- b. To what extent does the evidence base support the relationship between teachers' intrinsic motivation and better students' learning and academic outcomes?
- d. What gaps exist in the current body of research examining teachers' intrinsic motivation and what further research is needed?
- e. What policy recommendations can be derived from the review?

## **2.3 Stage two: identification of studies**

### **2.3.1 Eligibility criteria**

This review uses the Perspective, Intervention, Comparison, Evaluation (SPICE) framework (Stern et al., 2014) to develop and delineate the inclusion and exclusion criteria, and to frame the review questions (**Error! Reference source not found.**). The reasons for the inclusion of relevant evidence will be explained in detail during the full-text review stage. The primary search will be conducted on 15 interdisciplinary electronic data bases that index literature related to education and social sciences in general. Products will be included in the review if they:

- a. were published during last 10 years;
- b. have been published in English or Spanish;
- c. address the phenomenon of teachers' intrinsic motivation;
- d. report quantitative outcomes and provide an analysis of empirical data on students' learning and achievement such as changes in behaviors, competencies or skills. The types of publication that will be included in the review are original research articles, evaluation reports, books, book chapters, and conference articles. Reflection papers, editorials, comments, short communications, reports on scientific meetings, corporate literature, and similar documents will be excluded. Qualitative studies will be excluded but their reference lists will be screened for potential eligible studies.

### **2.3.2 Information sources**

A three-stage process will be used to search and identify potentially relevant studies for the review. Firstly, the primary literature search will be conducted using the following electronic databases accessible to the authors through their home institution, and relevant to the topic of the review: Bibliotechnia, Cambridge Journals Online, Dialnet, DOAJ, Ebsco, Emerald, Eric, *Social Science Protocols*, October 2021, 1-13.

<http://dx.doi.org/10.7565/ssp.2021.v4.6456>

Hapi, IEEE Xplore, JSTOR, OECD, SciELO, Science Direct, Scopus, Springer Link, and Taylor & Francis. The search will cover quantitative studies published in Spanish and English in the last decade. Table 1 shows the key terms that will be used in the search process: The terms will be combined in search strings using Boolean operators “OR” and “AND” in order to identify sources that report the effects of teachers’ intrinsic motivation on students’ learning. The search strings will be used to query the “title”, “abstract”, and “subject” fields of each database. Examples of search strings using EBSCO Discovery Service™ are:

- TI "Teacher\* intrinsic motivation" AND TI "student\* outcomes"
- TI "Teacher\* motivation" OR TI "Teacher\* autonomous motivation" AND TI "academic achievement" AND TI "student\* motivation"
- TI "Teacher\* intrinsic motivation" AND TI "student\* achievement" OR TI "academic achievement"

**Table 1. Key terms for search strings**

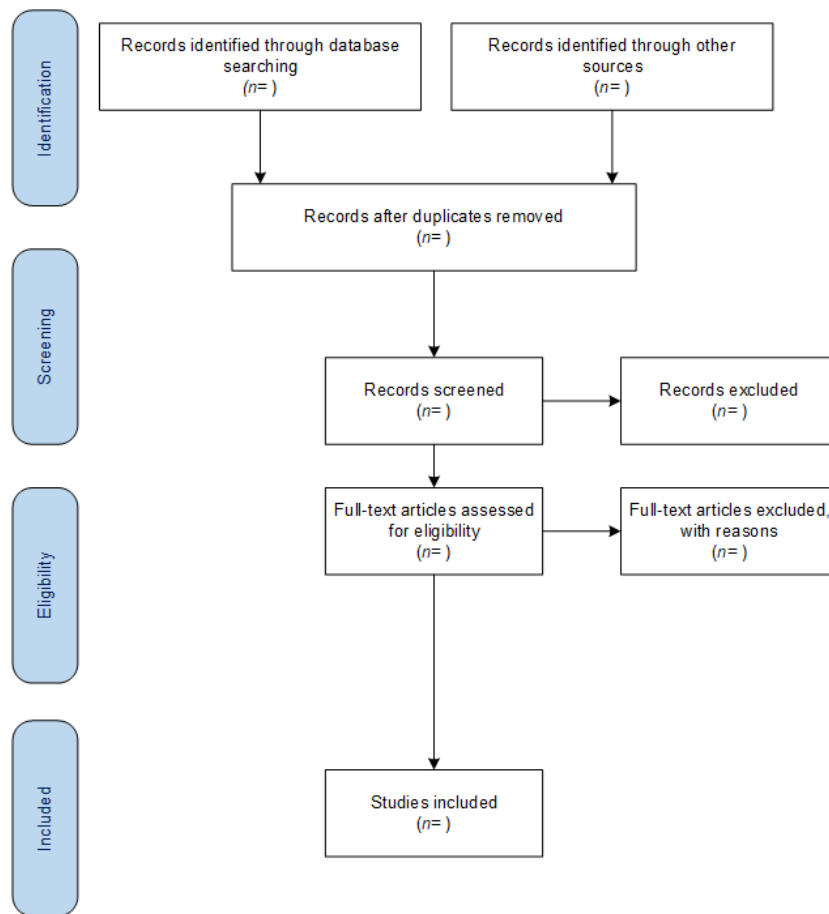
| <b>Intervention-related</b>  | <b>Boolean operators</b> | <b>Outcome-related</b>   |
|--|--------------------------|--|
| “Teacher* intrinsic motivation”<br>“Teacher* autonomous motivation”<br>“Teacher* enjoyment”<br>“Teacher* self-determination” | AND<br>OR                | “Student* learning”,<br>“Student* literacy”,<br>“Student* outcomes”,<br>“Student* achievement”,<br>“Academic achievement”,<br>“Academic performance, |

The search strings will be adapted to the syntax of each database, and a detailed appendix with each search string used in the review will be included in the final report. The second strategy involves conducting citation mining of documents identified during the primary search. This includes a manual backward and forward search of references cited in both previous systematic reviews and in studies selected for the review. To avoid threatening the validity of the review, the third strategy focuses on the identification of gray literature (McAuley et al., 2000). The search will be conducted in ProQuest Dissertations and Thesis, Google, Google Scholar, OpenGrey, and Semantic Scholars. Gray literature sources will be evaluated if they meet the inclusion criteria described above for the primary published studies. Two reviewers will independently carry out this process and if any disagreement arises, then it will be resolved via mutual discussion.

## **2.4 Stage three: selection of studies**

The selection of studies will follow a three-step process, as suggested by the PRISMA guidelines and shown in the flow diagram for the scoping review process (Figure) (Liberati et al., 2009). In the first step, the title will be screened for topic relevance. In the second step, and if the title is in line with the objectives of the review, the abstract will be read. In the third step, the reviewers will independently read the full text of the studies selected in the second stage, in order to determine whether they meet the inclusion criteria.

**Figure 2.** PRISMA flow diagram for scoping reviews.



## 2.5 Stage four: extraction of data

Data from the selected studies will be extracted onto a form (see Appendix) adapted from the Joanna Briggs Institute (JBI) data extraction instrument (Aromataris & Munn, 2020). The extracted results will be classified according to the Self Determination Theory (SDT), which proposes that intrinsic motivation is enhanced when people satisfy the psychological needs of autonomy, competence, and relatedness (Ryan & Deci, 2000a). This process will be carried out in duplicate by the reviewers and a random sample of completed forms will be selected. Any disagreement will be resolved through discussion or by a third independent reviewer.

## 2.6 Stage five: analysis, synthesis, and dissemination of results

In this stage of the review, the inclusion/exclusion pathway will be presented using a flow diagram which conforms to the PRISMA-ScR statement for systematic reviews (Figure) (Liberati et al., 2009). An overview table will be created to display information about study characteristics from retrieved documents. This table will display information about location, author, year of publication, title, and sources (Card, 2012). A table will also be used to present the results of the quality appraisal process. The reviewers will discuss and consolidate the results. We will employ a narrative strategy to summarize and synthesize data about the variables, scales and, technical approaches reported in the documents selected for revision. The analysis will also include an identification of the gaps in the literature, evidence of the effects

of teachers' intrinsic motivation on students' learning and achievement, recommendations for further research and policy implications for educational context.

### 2.6.1 Quality assessment and risk of bias

The reviewers will assess the quality of the studies and their risk of bias, but the results will not be used to exclude them from the review, given that one of the objectives of this scoping review is to evaluate the existing evidence of the effects of teachers' intrinsic motivation on teaching and learning process. The reviewers will perform the quality assessment and independently score each included study. Studies will be evaluated using The Critical Appraisal Checklist for an Article on an Educational Intervention Tool (University of Glasgow, n.d.). This checklist consists of 13 items grouped under four major categories: the clarity of the research question, the nature and precision of the results, the validity of results, and the applicability of the results to other settings (Table). Eleven items can be classified into three categories: "Yes", "Can't Tell", and "No" and there are two open-response items (10 and 11). For assessing the quality of the studies, a score of two points will be assigned to the "Yes" category, one point to "Can't Tell", and zero points to "No". Based on the final score, the studies will be sorted into three groups according to quality: high (>70%), medium (50–70%) and low (<50%).

**Table 2.** Critical appraisal checklist (University of Glasgow, n.d.).

| Item  | Assessment criteria**   |
|---|---|
| Q1  | Is there a clearly focused question?  |
| Q2  | Was there a clear learning need that the intervention addressed?  |
| Q3  | Was there a clear description of the educational context for the intervention?  |
| Q4  | Was the precise nature of the intervention clear?   |
| Q5  | Was the study design chosen able to address the aims of the study?  |
| Q6  | Were the outcomes chosen to evaluate the intervention appropriate?  |
| Q7  | Were any other explanations of the results explored by the authors?   |
| Q8  | Were any unanticipated outcomes explained?  |
| Q9  | Were any reported behavioral changes after the intervention linked to measurement of other, more objective measures e.g. changes in referral rates? |
| Q10   | What were the results of the intervention? (Open response)  |
| Q11   | How precise were the results? (Open response)   |
| Q12   | Was the setting sufficiently similar to your own and/or representative of real life?  |
| Q13   | Does it require additional resources to adopt the intervention?   |
| ** Items Q1 through Q9, Q12 and Q13 will be scored as "Yes"=2; "Can't tell" = 1; "No"=0. Items Q10 and Q11 are open response items. |   |

### 3. Discussion

The Self-determination Theory—with its central constructs of intrinsic and extrinsic motivation, has become an important area of research due to its potential to help explain both why some teachers are more effective than others in helping students achieve better educational outcomes and the individual and contextual factors that lead to either teacher motivation or demotivation. The large amount of literature in this field not only reveals the complexity of this trait of human behavior (Neves de Jesus & Lens, 2005) but also confirms the relevance of this issue for educational researchers and practitioners, who now have at their disposal a wide

variety of conceptual and analytical tools for studying the drivers and impact of motivation in school settings.

This growing recognition that self-determination (Deci & Ryan, 1985; Ryan & Deci, 2018) in teachers is critical to student achievement and educational quality has resulted in a plethora of conceptual and anecdotal literature that focuses primarily on the perceived importance of motivation and the collective thinking about it. Empirical research, on the other hand, is less common, making evidence-based decisions difficult for educational practitioners and policymakers. This supports the need for a scoping review of the evidence to serve as a foundation for policies and planning related to increasing teacher motivation, particularly in emerging and developing economies where issues related to teacher motivation seriously undermine the learning opportunities of millions of children and youth.

By publishing this scoping review protocol in an open access journal, we seek to reduce the chances of duplication and increase the transparency of the process. In this way, other researchers and interested parties will be able to assess whether the final review conforms to the provisions of the protocol and offer their input and recommendations to improve the quality of the study.

Potential limitations of the review include the heterogeneity of approaches, populations, types of educational institutions, and individual characteristics of students and teachers. These factors can all influence the methods and scales used to measure teachers' intrinsic motivation as the measures used to assess their impact on students' learning and achievement. For this reason, whenever possible, we will report results by subgroups and control for differential characteristics to the greatest possible extent in our analyses. Other limitations of the review include the exclusion of qualitative studies, which could be an important source of information about teachers and students' personal experiences, attitudes, and beliefs, all of which could play an important role in their motivation to teach and learn.

However, due to the theoretical and methodological foundations of qualitative research, this type of study requires a different approach in terms of quality, trustworthiness and appraisal than do quantitative studies (Marshall & Rossman, 2015; Sandelowski, 2008). This, coupled with the challenges identified when searching for qualitative research studies, including the wide variety of methodologies, the use of descriptive non-explicit titles, and the absence or lack of structured abstracts (Booth, 2016), could compromise the manageability of the review. For this reason, and as mentioned before, qualitative studies will not be included in the review but their reference lists will be screened for potential eligible studies. Despite these potential limitations, mapping and synthesizing the empirical literature on teachers' intrinsic motivation will contribute to a better understanding of the impact of socioemotional factors on students' learning and achievement, and will provide educational practitioners, researchers, and policymakers with useful information to make informed decisions.

## **Declarations**

**Competing interests:** The authors declare that they have no competing interests.

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**Authors' contributions:** AMS conceived the study, outlined the proposal, and is the guarantor of the review. AMS and RLG contributed to the design of the review and writing of the protocol. AMS and RLG jointly developed the search strategy and data extraction framework. AMS and RLG drafted and approved the final version of the manuscript as submitted.



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## Appendix

### Data extraction form (Aromataris & Munn, 2020)

| Form field                                 | Description   |
|--|---|
| Scoping review title:                      | Do motivated teachers' enhance students' learning? Protocol for a scoping review of evidence about the effects of teachers' intrinsic motivation on student achievement.  |
| Review objective/s:                        | To collect, synthesize, and map existing quantitative evidence about the effects of teachers' intrinsic motivation on students' outcomes.   |
| Review questions:                          | What empirical evidence is there about the effects of teachers' intrinsic motivation on students' outcomes? To what extent does the evidence base support the relationship between teachers' intrinsic motivation and better students' academic outcomes? What gaps exist in the current body of research examining teachers' intrinsic motivation and what further research is needed? What policy recommendations can be derived from the review? |
| Concepts (what*):                          | Self Determination Theory, intrinsic motivation, student learning, emotional well-being   |
| Population (for whom*):                    | Humans  |
| Core concept:                              | Effects of teachers' intrinsic motivation on students' learning and achievement in school context.  |
| Languages:                                 | English, Spanish  |
| Date of publication:                       | January 2011-September 2021   |
| Data extraction:                           | Name (i.e., person extracting data), date of data extraction  |
| Author(s):                                 | Authors of reviewed document  |
| Title of document:                         |   |
| Type of publication or source:             | e.g. book chapter, academic journal   |
| Year and place of publication:             |   |
| Aim(s)/research question(s):               |   |
| Type of study or methodological approach:  | including data collection methods and analytical approach, if available .   |
| Academic discipline/disciplinary approach: | e.g. school education, educational development, human behavior, emotional well-being factors associated to student performance.   |
| Location (where*):                         | Place where study was implemented   |
| Context:                                   | schools   |

| <b>Form field</b>   | <b>Description</b>  |
|---|---|
| Sample size:  |   |
| Year(s) of data collection:   |   |
| Other results:  | Other results extracted from the study or document content  |
| Conceptual/theoretical framework or approach:   | Self Determination Theory (Ryan & Deci, 2000a)  |
| Domains addressed/focus of study:   | e.g., teacher motivation, student motivation, teaching, learning outcomes   |
| What result:  | Key findings that relate to the scoping review question(s)  |
| Comments:   | Comments on gaps, inconsistencies, and biases due to anecdotes, personal accounts or beliefs about the effects of teacher motivation on student achievement |
| Reported teacher intrinsic motivation-related aspects:  | e.g., Autonomy, competence and relatedness, teaching and learning process, impact of emotional factors on educational quality.                              |
| What else:  | Other emerging information or themes  |
| *Asterisks indicate components of the SPICE framework: Setting (where); Perspective/Population (for whom); Intervention/Phenomena of Interest (what); Comparison (what else); Evaluation (what result or how well). |   |