A Review on Teachers' and Teacher Candidates' Intrinsic Motivation: Self-determination Theory Perspective

Derya Uysal

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Review Article

A review on teachers' and teacher candidates' intrinsic motivation: Self-determination theory perspective

Derya Uysal ✉ ORCID
Assistant Prof. Dr., School of Foreign Languages, Alanya Alaaddin Keykubat University, TURKIYE

Abstract

Considering the results driven by two decades of empirical work on Self-determination Theory, it is claimed students benefit from intrinsic motivation. However, teachers need to be intrinsically motivated for the profession to fully support intrinsic motivation of students. This study aims to identify the variables in a positive relationship with intrinsic, or self-determined motivation of teachers and teacher candidates based on the existing studies. It is also aimed to make suggestions on how to increase their intrinsic motivation from the perspective of self-determination theory. In this review study, qualitative document analysis method was used. 48 existing studies fulfilling the pre-determined criteria were reviewed and their results sections were analyzed to answer the research questions. Concerning the results, teachers' and teacher candidates' intrinsic motivation has an effect on competence in teaching, job satisfaction and retention, students' motivation for learning, willingness to be involved in and sustain professional development, reduced teacher burnout, goal orientation, decrease in severity of reality shock, productive teaching style, and learning styles. Besides, in case three needs (for autonomy, relatedness and competence) are fulfilled, they are likely to become more intrinsically motivated towards the teaching profession. The results are significant in terms of presenting a frame for teachers' intrinsic motivation and shedding light on the possible directions for future studies.

Introduction

The self-determination theory distinguishes between controlled and self-determined motivation as well as intrinsic and extrinsic types of motivation because people are assumed to have not only different kinds, but also different amounts of motivation. That is, the level (how much) and orientations (what type) of motivation people have are various. Orientation of motivation is concerned with underlying attitudes or goals that lead to actions. Based on the orientation of action, motivation is divided into two classes that are intrinsic or extrinsic. When people do something as it is interesting or joyful, they display intrinsic motivation. However, when they do something because it leads to a desirable outcome, they are extrinsically motivated. Even if an action is taken for external reasons at the beginning, it may turn into intrinsic motivation as a result of internalization (Ryan & Deci, 2000). Self-determination theory classifies behaviors as intentional or motivated unlike other motivational theories that distinguish behaviors in two classes that are intentional or unintentional (Deci et al., 1991).

Three psychological needs -for autonomy, competence, relatedness- direct goal pursuits of people, which in turn determines autonomous, or self-determined behavior. When these three needs are completely fulfilled, intrinsic motivation occurs. However, sometimes the internalization process might fail or succeed to different degrees. As a result, values and regulations remain external or partially internalized. As a result, unlike some other perspectives, self-determination theory claims extrinsic motivation is still autonomous, but to different degrees. Self-determination theory classifies extrinsic motivation into four types considering the degree to which it is autonomous (Deci & Ryan, 2000).

Figure 1. The self-determination continuum (Ryan & Deci, 2000)

<u>Behavior</u>	Non-self-determined					Self-determined
<u>Type of motivation</u>	Amotivation		Extrinsic motivation			Intrinsic motivation
<u>Type of regulation</u>	Non regulation	External regulation	Introjected regulation	Identified regulation	Integrated regulation	Intrinsic regulation
<u>Locus of causality</u>	Impersonal	External	Somewhat external	Somewhat internal	Internal	Internal

Figure 1 illustrates the self-regulatory, perceived locus of causality, and motivational bases of behaviors that vary in the degree to which they are self-determined. Amotivation is placed at the far left of the continuum as it refers to non-regulation and non-self-determination while intrinsic motivation is placed at the far right of the continuum as it refers to self-determined and internal regulation.

First, external regulation refers to the least self-determined form of external motivation. Obtaining a tangible reward or avoiding a threat control externally motivated behaviors. Second, partially internalized behaviors refer to introjection. Introjected behaviors have not been

harmonized with the self, so they are not self-determined. Specific others control introjected regulations. Self-worth (pride) or threats of guilt and shame are the prototypes of these types of behaviors. Third, identification occurs when people appreciate the value of an action. For example, when a student wants to learn English as he or she thinks it is important in professional work life, that is identified regulation. The action becomes part of identity; however, the behavior is still instrumental. Introjected motivation is not as autonomous as identified motivation. Fourth, integration is the most autonomous form of external motivation. Behavior has been completely internalized and people have fully harmonized it with their self. Last, amotivation refers to nonregulation and nonself-determination (Deci & Ryan, 2000; Ryan & Deci, 2000). Ryan and Deci (2000) have placed motivation types along a continuum considering their level of self-determination and control.

Concept of motivation is significant in terms of positive outcomes such as better learning, higher self-esteem, higher self-competence and higher self-efficacy, and higher quality learning, so awareness about motivation types and their roles are pivotal in academic contexts (Koludrović & Ercegovac, 2015). This explains why various motivation theories have been put forward and investigated in relation to the teaching profession so far. Unlike the earlier motivational theories that distinguish extrinsic and intrinsic motivation and find extrinsic motivation provoked by rewards or punishment superior to intrinsic motivation, contemporary theories emphasize that teachers should promote intrinsic motivation because it contributes more to positive outcomes in terms of teachers and students (Deci & Ryan, 2013; Deci et al., 1994; Ryan & Deci, 2019).

In this regard, a special attention needs to be paid to self-determination theory that puts an emphasis on the inherent curiosity of people and their love of learning. People want to internalize values and knowledge surrounding them. When educators prefer guiding learning processes through external controls such as rewards, reinforcements, or punishments rather than resources provoking joy, interest, and satisfaction; they replace positive feelings associated with learning with the negative ones such as anxiety, low-self-esteem, or boredom (Ryan & Brown, 2005).

Therefore, teachers should make every effort to develop intrinsic motivation that lead students to be interested in what is taught and allow real learning to occur in classrooms. In other words, students should desire to learn something as they find it enjoyable, not for instrumental reasons. Based on the results driven by two decades of empirical work, it could be claimed that students benefit from autonomous motivation in educational settings (Reeve, 2002; Reeve, 2006). However, teachers themselves need to be intrinsically motivated for the teaching profession to fully support intrinsic motivation of their students.

Similarly, a number of existing studies prove the significance of developing teachers' intrinsic motivation. One of these studies revealed that motivational constructs positively influence the professional development of teachers (Durksen et al., 2017). Also, intrinsically motivated teachers are more likely to internalize educational reforms, which help school reformers overcome the problem of predictable failure (Assor et al., 2009). Lastly, according to results of a meta-analysis study, autonomous motivation positively correlates to adaptive outcomes and negatively correlates to maladaptive outcomes (Vasconcellos et al., 2020). Taken together, it could be claimed that intrinsic motivation is in a positive relationship with positive outcomes in the teaching profession. However, results of the existing research show that teachers may not be intrinsically motivated for teaching.

For instance, according to Spittle et al. (2009), teaching is a profession with an attrition rate of 30% for early career teachers and the profession struggles to attract and maintain new graduates. Therefore, studies exploring motivation types of teachers and teacher candidates are useful in terms of designing curricula for training them. Defining academic motivation of teachers and teacher candidates is beneficial for teacher trainers and administrators to take necessary precautions to support intrinsic motivation. Similarly, exploring the relationship between intrinsic motivation and positive outcomes related to the teaching profession helps target community (teacher trainers, faculty members and administrators) get a perspective on reasons of creating a learning and work environment that support intrinsic motivation. Last, suggestions on how to support intrinsic motivation of teachers and candidate teachers present the techniques helpful in increasing intrinsic, or autonomous motivation. Briefly, findings of this study inform teacher recruitment and retention policies as well as the planning of effective teacher education programmes and wider education policy.

This review study aims to identify the variables that are in a positive relationship with intrinsic, or self-determined motivation of teachers and teacher candidates based on the existing studies. Also, the study aims to make suggestions on how to increase intrinsic motivation of the target group from the perspective of self-determination theory. Keeping these aims in mind, the researcher examined the results of the existing studies that demonstrated a positive relationship between intrinsic motivation of teachers and teacher candidates and some variables related to teaching profession. Answers were sought to the following questions:

● What type of academic motivation teachers and teacher candidates have for teaching profession according to the results of the existing studies?

● What are the variables in a positive relationship with intrinsic motivation of teachers and teacher candidates according to the results of the existing studies?

● How can intrinsic motivation of teachers and teacher candidates be promoted from the perspective of self-determination theory?

Methodology

This paper presents the results of a review study on teachers' and teacher candidates' intrinsic motivation from Self-Determination Theory perspective. A qualitative method, document analysis, was adopted in the study. Review process of the study was carried out from June, 2020 to March 2021 and 38 studies were included into the study. Between June 2022 and Jan, 2023, the pool of articles was updated and 10 more articles were added. As a result, 48 articles in total were reviewed for this study. The results of the studies in the initial pool were analyzed and reported from March, 2021 to August 2021. After updating the pool, the results of the analysis were updated accordingly.

Selection of the articles

Three steps were followed in review and analysis process. First, the studies investigating the predetermined topic were searched with these keywords in the databases: intrinsic motivation, self-determined motivation, self-determined behavior, autonomous motivation, autonomous behavior (and their Turkish equivalents: içsel motivasyon, içsel güdülenme, otonom güdülenme, otonom davranış, öz-belirleme teorisi). Target articles were searched in the web of science, ERIC, and TÜBİTAK ULAKBİM TR Dizin databases. As the scope of self-determination

theory was not restricted with education, more than five hundred studies were reached. However, only the ones in the field of education were saved in a folder. In the second step, these studies were examined and the ones fulfilling the following criteria were selected and saved in another folder.

- ✓ Studies investigating teachers' or teacher candidates' motivation in relation two different variables
- ✓ Studies that proved a positive relationship between intrinsic motivation of teachers or teacher candidates and positive outcomes related to the teaching profession
- ✓ Studies whose participants are teachers or teacher candidates
- ✓ Studies published in 2000 and after
- ✓ Studies indexed in Web of Science (ESCI and SSCI), ERIC, and TÜBİTAK ULAKBİM TR Dizin databases
- ✓ Studies exploring students' intrinsic motivation were excluded
- ✓ Meta-analysis, meta-synthesis, and scale development studies were excluded

As a result of the second step, 48 studies in total were determined and included in this study. (The study's articles were shared to the research community: https://osf.io/bx84t/) In the third step, the results of the studies were summarized in an excel file. In this excel file, following titles were used for coding the articles: title of the study, authors of the study, year of the study and results of the study.

Analysis of the data

Results section of all 48 articles were analyzed following the steps suggested by Bowen (2009). Document analysis involves skimming (superficial examination), reading (thorough examination), and interpretation. This iterative process combines elements of content analysis and thematic analysis. Content analysis is the process of organizing information into categories related to the central questions of the research (Bowen, 2009). In this process, first, a framework is created by using the categories in documents, observations, interviews, or literature. Second, the data is analyzed according to these categories (Yıldırım & Şimşek, 2003). Thematic analysis is useful in uncovering themes pertinent to the phenomenon explored. During this process, the reviewer takes a closer look at the selected data and performs coding and category construction. Predefined codes may be used during this process.

During the content analysis, three categories created in line with the three research questions were used as a framework and the data gathered were coded according to three shared categories. Three shared categories were 1- academic motivation types of teachers and teacher candidates, 2- positive outcomes in a positive relationship with intrinsic motivation of teachers and teacher candidates, 3- the suggestions on how to promote intrinsic motivation among the target group. After that, the thematic analysis was used to reveal the themes related to each of these three pre-defined codes. As a result of thematic analysis process, the themes pertinent to the phenomenon (intrinsic motivation of teachers and teacher candidates) were uncovered.

Credibility and verifiability

According to Patton (1999), for ensuring the credibility in qualitative research, the researcher has an obligation to be methodical in reporting sufficient details of data collection and the processes of analysis to permit others to judge the quality of the resulting products. Besides,

the researcher should gather high quality data. In this research the researcher limited the data with articles in Web of Science (ESCI and SSCI), ERIC, and TÜBİTAK ULAKBİM TR Dizin databases to reach high-quality data. Besides, the processes of research -review, analysis and reporting- were presented in a detailed way. For ensuring verifiability (Bowen, 2009), the list of the articles included into this study and the sources of results were shared with the community (https://osf.io/bx84t/), so it was ensured for respondents and informants to have access to the information reached and its sources.

Findings

The findings are presented considering the three research questions.

Research question 1

The first research question is "What type of academic motivation teachers and teacher candidates have for the teaching profession according to the results of the existing studies?". The results as to the first question are shown in Table 1.

Table 1. Academic motivation type

Study	Participant	Result	
Spittle et al., 2009 Spittle & Spittle, 2014	Teacher candidates	✓	high to moderate scores for extrinsic motivation for teaching
		✓	despite quite low amotivation toward teaching, highest level of amotivation is in third year
Kaldi & Xafakos, 2017	Teacher candidates	✓	very high levels of intrinsic and identified motivation to teach
		✓	medium levels of introjected regulation for teaching
Taylor et al., 2008	Teacher candidates	✓	low to moderate level of self-determined motivation
Koludrović & Ercegovac, 2015	Teacher candidates	✓	the highest level of motivation type is extrinsic identified motivation followed by external motivation and intrinsic motivation
		✓	participants scored lowest on amotivation
Wang & Liu, 2008	Teachers	✓	high intrinsic and identified regulations towards NE (national education)
In de Wal et al., 2014	Teacher candidates	✓	48% of the teachers are moderately motivated (medium–high intrinsic motivation and identified regulation, and medium–low introjected and external regulation)
		✓	13% of the participants are externally motivated
		✓	39% of the participants are either highly autonomous or extremely autonomous
Yüce et al., 2013	Teacher candidates	✓	participants choose teaching professions for extrinsic (36.75%) and intrinsic (30.02%) motives
Tekin, 2016	Teacher candidates	✓	intrinsically motivated to teach, rather than being extrinsically motivated
Yıldız & Kılıç, 2021a	Teachers	✓	High level of identified regulation (6.06) and introjected motivation (5.89), moderate level of intrinsic motivation (4.79) and low level of amotivation (1.32)
Yüner, 2020	Teacher candidates	✓	Intrinsic and external academic motivations that are higher than the moderate level, low level of amotivation
Taşkesen, 2019	Teacher candidates	✓	A high level of intrinsic and extrinsic motivation and low level of amotivation

As illustrated in Table 1, intrinsic motivation of the target group (teachers and teacher candidates) varies in degree. However, considering the results, it could be claimed that teachers are extrinsically motivated as well as intrinsically motivated. Despite the scarcity of the studies

describing amotivation level of teachers, their amotivation level is quite low compared to other types of motivation. As the studies exploring the academic motivation of teachers are not high in number, it is hard to come to a valid conclusion, so there is a need for studies exploring the academic motivation of both in-service and pre-service teachers. The results of the existing studies reveal that number of teacher candidates with amotivation is quite low, which means that pre-service teachers consciously preferred the profession because of intentional -internal or external- reasons. The decision to become a teacher is not unintentional for most of the teacher candidates.

Research question 2

Second research question is "What are the variables in a positive relationship with intrinsic motivation of teachers and teacher candidates according to the results of the existing studies?". Existing studies prove that intrinsic motivation is in a positive relationship with a number of positive outcomes related to teaching profession (Table 2).

Table 2. Positive outcomes in a positive relationship with intrinsic motivation

Study	Participant	Positive outcomes
Kaldi & Xafakos, 2017	Teacher candidates	
Wang & Liu, 2008	Teachers	Competence in teaching
Taylor et al., 2008	Teacher candidates	
Perlman, 2013	Teacher candidates	
Yüner, 2020	Teacher candidates	
Bruinsma & Jansen, 2010	Teacher candidates	
Özder & Motorcan, 2013	Teacher candidates	
Yıldız & Kılıç, 2021b	Teachers	
Atik & Çelik, 2021	Teacher candidates	Job satisfaction and retention
Kırkağaç & Öz, 2017	Teacher candidates	
Zembat et al., 2018	Teacher candidates	
Taşkesen, 2019	Teacher candidates	
Topoğlu, 2022	Teacher candidates	
Roth et al., 2007	Teacher candidates	
Niemiec & Ryan, 2009	Teachers	
Assor et al., 2002	Teachers	
Bieg et al., 2011	Teachers	Students' motivation for learning
Reeve & Jang, 2006	Teacher candidates	
Reeve, 2002	Teachers	
Black & Deci, 2000	Teachers	
Reeve et al., 2004	Teachers	
Kaplan & Madjar, 2017	Teacher candidates	
Koestner & Losier, 2002	Teachers	Willingness to involve in and sustain
In de Wal et al., 2014	Teachers	professional development
Gorozidis & Papaioannou, 2014	Teachers	
Fernet et al., 2004	Teachers	Reducing teacher burnout
Fernet et al., 2012	Teachers	
Malmberg, 2006	Teacher candidates	Goal-orientation
Gorozidis & Papaioannou, 2016	Teachers	
Kim & Cho, 2014	Teacher candidates	Decrease in severity of reality shock
Hein et al., 2012	Teachers	Teaching styles of teachers
Uysal, 2022	Teacher candidates	Learning styles of pre-service teachers

As seen in Table 2, intrinsic motivation has an effect on a number of variables that influence teaching skills of teachers and teacher candidates as well as learning process of students. These variables are as follows:

Competence in teaching

Relationship between intrinsic motivation and competence in teaching was proved by a number of studies (Kaldi & Xafakos, 2017; Taylor et al., 2008; Wang & Liu, 2008; Yüner, 2020). A study conducted with primary school teacher candidates showed that intrinsic and integrated motivation along with support presented by teacher trainers in faculties of education positively influence teacher candidates' self-competence in teaching. Also, there is a correlation between their' introjected regulation and instructional competence, which most probably means that they feel responsible when they cannot successfully display elements of instructional competencies (Kaldi & Xafakos, 2017).

Similarly, a study exploring the motivation types of teachers teaching National Education lessons in Singapore showed that the more self-regulated the teachers are, the more competent they feel in teaching the lesson and the more satisfied they are with the national education program provided by teacher training courses (Wang & Liu, 2008). Results of another study proved that it is more likely that when teachers are highly autonomous, they tend to seek out ways leading to active engagement so they feel related to their students and colleagues, competent when teaching, and autonomous in deciding their actions (Taylor et al., 2008).

Although it did not directly examine the relationship between intrinsic motivation and competence, the results of some existing studies demonstrated that intrinsic motivation of teacher candidates support the variables that affect teaching competence positively. A study by Perlman (2013) proved a positive correlation between intrinsic motivation and professional commitment along with professional knowledge which indirectly affect teaching competence. In the study conducted with 68 undergraduate Physical and Health Education teacher candidates, it was found that highly self-determined teacher candidates outperformed others in terms of professional commitment and knowledge. This finding shows that a high level of self-determined motivation is an indicator of effective teaching practices because while professional knowledge, or understanding of subject specific content and teaching principals help teachers meet different needs of diverse students, commitment helps them adopt ideal teacher dispositions towards being a quality teacher (Perlman, 2013).

Job satisfaction and retention

Studies exploring the teacher training program's quality provide evidence on the relationship between teachers' retention as a result of job satisfaction and their intrinsic motivation. A study proving this relationship was conducted by Bruinsma and Jansen (2010) with teacher candidates. According to the results of the study, intrinsically motivated teacher candidates have more positive perceptions of learning experiences in faculties of education and quality of teacher training program, which is related to their decision to remain in the profession. On the other hand, extrinsic motivation indicates negative experiences during the training process and expectation about spending less time in the profession (Bruinsma & Jansen, 2010).

Likewise, according to the results of another study, high academic motivation results in high academic achievement. The more intrinsically motivated teacher candidates are, the more

they get pleasure from the activities presented during the teaching process, which is a significant factor in increasing their intrinsic motivation level for teaching profession (Atik & Çelik, 2021; Özder & Motorcan, 2013; Kırkağaç & Öz, 2017; Taşkesen, 2019; Zembat et al., 2018). Also, in a study conducted with teacher candidates, it was revealed that the candidates with high level of amotivation were more likely to fail the courses because of absenteeism while the ones that did not fail the course were more likely to have intrinsic motivation (Topoğlu, 2022). Last, concerning teachers, a positive relationship between job satisfaction and intrinsic motivation as well as a negative relationship between teacher burnout and intrinsic motivation was found (Yıldız & Kılıç, 2021b).

Students' motivation for learning

Intrinsic motivation of teachers is pivotal in terms of students' motivation for learning according to the results of many existing studies. Existing studies give evidence on the relationship between teachers' autonomous motivation and self-perceived competence in teaching, which affected students' motivation for learning (Niemiec & Ryan, 2009; Roth et al., 2007). Similarly, intrinsic motivation was found to be in a positive relation with such factors as sense of self-accomplishment and self-engagement (Kaplan & Madjar, 2017). The findings of the studies revealed that teachers' autonomous motivation for teaching promotes students' autonomous motivation for learning because students perceive teaching processes managed by autonomously motivated teachers as autonomy-supportive, which lead to autonomous motivation for learning among students (Niemiec & Ryan, 2009; Roth et al., 2007).

Similarly, this result was confirmed by a number of studies that sought an answer for the question whether teachers with higher levels of intrinsic motivation for teaching promote intrinsic motivation of students for learning (Assor et al., 2002; Roth et al., 2007). The intrinsic motivation of the students rises when they perceive their teacher as autonomy supportive and caring (Bieg et al., 2011; Reeve & Jang, 2006). Instructional behaviors that correlate positively with students' autonomy are as follows: creating time for independent work, listening, praising signs of improvement and mastery, allowing them to have their say, encouraging student's effort, being responsive to the student's questions, giving advice about how to progress when students feel stuck, and acknowledging their perspective and experiences.

An existing study by Black and Deci (2000) shed light on the effect of perceived leader autonomy on self-regulation for studying the subject of the course and student performance. According to the findings of the study, students' perceptions of leader autonomy increased autonomy of self-regulation for studying the subject. Also, their perceived competence and positive feelings increased while their negative feelings diminished. As a result, students performed better in the course when they perceived their leaders as more autonomy supportive. Specifically, students' performance was moderated by their initial level of autonomy along with the instructor's autonomy support. If they found instructor autonomy supportive, the students displaying a low level of autonomy at the beginning of the course performed better at the end of the course. Regarding the students with a high level of autonomy at the beginning of the course, their performance was not influenced by their perception of the instructor as autonomy supportive or not. It seems perceived leader autonomy is beneficial for students with a low level of autonomy.

Based on conclusions driven by these empirical studies, it could be claimed that when teachers are autonomy-supportive, students benefit. Autonomous motivation of teachers is significant in terms of quality of students' motivation, academic achievement, learning, and willingness to stay at school (Reeve, 2002; Reeve et al., 2004).

Willingness to involve in and sustain professional development

Results of some existing studies have proved the positive effect of intrinsic motivation on teachers' willingness to involve in and sustain professional development. The study that explored motivational profiles of Dutch secondary school teachers in relation to professional development indicated that extremely autonomous teachers have a very high level of identified regulation and intrinsic motivation and they are the first and foremost to engage in professional development activities as they find these activities valuable, interesting, enjoyable and important. Thus, they actively engage in the activities in the short-term and sustain these activities even if they don't think they are enjoyable (Koestner & Losier, 2002). On the contrary, externally regulated teachers have non-optimal motivation for professional development because they are less engaged in such activities, both in quality and frequency. Their participation in professional development activities are fed by encouragement of others (In de Wal et al., 2014).

Similarly, the study carried out with Greek teachers gave evidence on the positive correlation between teachers' intrinsic motivation and intentions to implement innovative subjects. As a result of the study by Gorozidis and Papaioannou (2014), it was found out that autonomous motivation had a positive impact upon teachers' willingness to implement innovative subjects. Compared to their externally motivated counterparts who preferred to participate in in-service training to get a certificate, autonomously motivated teachers sustained prolonged involvement in innovative professional learnings. To put it in another way, although both externally and autonomously motivated teachers showed enthusiasm for participation in training in case they were delivered certificates, only autonomously motivated teachers had intentions to future implement the innovative subjects despite the workload and absence of certification.

Reducing teacher burnout

The existing studies that explored the relationship between teacher burnout and self-determined motivation or intrinsic motivation proved that intrinsic motivation is significant in reducing emotional exhaustion that leads to burnout. Regarding the relationship between intrinsic motivation and job demands, a study by Fernet et al. (2004) revealed that when facing job demands, feeling of job control is important in reducing emotional exhaustion for the people with perceived self-competence and a high self-determined motivation. However, for the people with a low level of self-determined motivation, job control does not play a stress-reducing role when facing job demands. Similarly, findings of another existing study (Fernet et al., 2012) are in line with this result. In addition to the widely-recognized role of self-efficacy in reducing teacher burnout, self-determined motivation plays a key role in reducing stress and exhaustion. Compared to the highly motivated ones, teachers who perceive themselves as less autonomously motivated and efficacious in accomplishing tasks teaching profession requires are more likely to feel greater exhaustion at the end of the school year.

Goal-orientation

In a two-phase study carried out by Malmberg (2006), it was investigated if type of motivation constitutes a foundation for goal-orientation of teacher candidates and the results showed a relationship between intrinsic motivation and mastery goals as well as extrinsic motivation and avoidance goals. Indicators of mastery goals are positive behaviors related to teaching profession such as help seeking, deep learning strategies, and well-being while avoidance goals indicate maladaptive behaviors such as low graded performance, lack of help seeking, and self-handicapping. Likewise, the study conducted by Gorozidis and Papaioannou (2016) indicated that while performance avoidance goal orientation had an insignificant relationship with autonomous motivation, it positively correlated to controlled motivation. Teachers with controlled motivation participate in training or implement innovations as a result of external factors such as avoidance of unfavorable judgments. Thus, in the absence of these factors, they are more likely to give up making an effort for professional development.

Decrease in severity of reality shock

The evidence supporting the role of intrinsic motivation on decreasing severity of reality shock experienced in earlier times of the teaching profession comes from a single study by Kim and Cho (2014). According to the results of the study, when the perceived self-efficacy of a teacher candidate is high, high intrinsic motivation is effective in decreasing the severity of reality shock experienced during the first year of the profession. However, the same result is not observed when the perceived self-efficacy is low. Therefore, it could be claimed that intrinsic motivation is necessary, but it is insufficient, to develop a positive outlook on the future reality of teaching. As there is not sufficient evidence regarding the relationship between intrinsic motivation and severity of reality shock, further studies are needed in order to explore this potential relationship deeply.

Teaching styles of teachers

Teaching styles of teachers are affected by their motivation types. A study by Hein et al. (2012) investigated correlations between productive or reproductive teaching styles of teachers and their motivation type and the results proved that physical education teachers having intrinsic and introjected motivation adopted productive teaching styles more frequently. While productive teaching styles consist of student-centered techniques and they are more beneficial in terms of promoting lifelong physical education habits, reproductive teaching styles are more teacher-centered and appropriate for motor skill acquisition. Similar to the severity of reality shock, there exists only one study that explored the relationship between teaching styles and motivation types of teachers. Therefore, this relationship needs to be confirmed with further studies.

Learning styles of pre-service teachers

Results of a recent study by (Uysal, 2022) demonstrated the relationship between academic motivation types and learning styles of candidate EFL teachers. While candidate teachers with diverging learning style adopted externalized regulation, the ones with assimilating style preferred knowing motivation, and the ones with converging style adopted externalized regulation. Considering the nature of education offered in faculties of education,

pre-service training includes theoretical content rather than practical work. Assimilators are good at theoretical work. Thus, it is likely that teacher candidates with assimilating learning style felt more competent, autonomous, and related during their pre-service training and they are likely to develop intrinsic motivation toward teaching. The study's results are significant in terms of designing curriculums that address different learning styles.

Research question 3

The third question of the study is "How can we promote intrinsic motivation in teachers and teacher candidates from the perspective of self-determination theory?". In line with this question, the ways of increasing intrinsic motivation of teachers and teacher candidates are discussed.

Self-determination theory itself evidences that in order to increase self-determined motivation of teachers and teacher candidates, their three needs for relatedness, competence and autonomy should be met (Deci et al., 1991). Obviously, basic need for satisfaction of teachers could be enhanced in case schools and school leaders could make some changes to the work environments of target groups (Gorozidis & Papaioannou, 2014). First, the ways of how to enhance autonomous motivation among teacher candidates and teachers are explained in relation to three basic needs for relatedness, for competence, and for autonomy. Also, results of studies exploring the change in intrinsic motivation level of teachers after the implementation of an autonomy supportive training are presented in this section. The results as to the third research question are summarized in Table 3.

Table 3. Suggestions to increase intrinsic motivation

Study	Participants	Suggestions to increase the need for three basic needs
Kaldi & Xafakos, 2017	Teacher candidates	1-high levels of support from teacher trainers and other faculty members
Niemiec & Ryan, 2009	Teachers	2-school perceived strong in collegiality
Lam et al., 2010	Teachers	
Cece et al., 2022	Teachers	
		3-educational projects supporting teachers' feeling of relatedness
Schellenbach-Zell & Gräsel, 2010	Teachers	
Lam et al., 2010		
	Teachers	
Uysal, 2022	Teacher candidates	4-increase the amount of practical work during pre-service education
Koludrović & Ercegovac, 2015	Teacher candidates	
Niemiec & Ryan, 2009		
	Teachers	5-feedback as to effectiveness of the tasks and providing challenging tasks in the education process
Wang & Liu, 2008		6-decreasing pressure on and interference with teachers' practices
Ryan & Deci, 2019	Teachers	
	Teachers	
Taylor et al., 2008	Teacher candidates	
Pelletier et al., 2002	Teachers	
Niemiec & Ryan, 2009	Teachers	
Martinek, 2019	Teachers	
Deci & Ryan, 2000	Teachers	7-school principals that encourage teachers to participate in major decisions about the school
Roth et al., 2007	Teachers	

		8-administrators encouraging teachers to take part in
Carson & Chase, 2009	Teachers	professional development activities
In de Wal et al., 2014	Teachers	
Power & Goodnough, 2019	Teachers	9-Organizing effective autonomy-supportive
Reeve, 2002	Teachers	trainings for teachers
Reeve, 2006	Teachers	
Reeve et al, 2004	Teachers	

A network of sources of support in faculties of education

Regarding the need for relatedness, results of the studies show that support from faculties of education affected intrinsic motivation of teacher candidates significantly. The study conducted by Kaldi and Xafakos (2017) proved that a network of sources of support and autonomous motivation are necessary in the process of becoming a teacher. Prospective teachers can increase their intrinsic motivation to teach when they receive high levels of support from teacher trainers and other faculty members. Both personal characteristics of teacher candidates and types of motivation should be acknowledged as an important part of the undergraduate studies.

School environment perceived strong in collegiality

A study examining the role of teacher motivation in implementing educational innovations suggested that contextual factors are pivotal in raising teacher motivation that initiate and persist an educational innovation. Teachers have higher motivation for implementation of innovations that demand extra effort and time in case they perceive their school as strong in collegiality and supportive of teacher autonomy and competence. In other words, school collegiality and support directly or indirectly influence teacher motivation (Cece et al., 2022; Lam et al., 2010). Similarly, the strategies proposed by Niemiec and Ryan (2009) to enhance relatedness at schools are conveying warmth, caring, and respect, which means creating a collaborative school environment is necessary to fulfill the need for relatedness.

Educational projects supporting teachers' feeling of relatedness

A study by Schellenbach-Zell and Gräsel (2010) indicated that the educational projects supporting teachers' feelings of self-competence and relatedness provoked their self-determined motivation to participate in a project. These findings are significant for educational authorities and policy-makers planning to initiate education reforms (Lam et al., 2010). Teachers' perspectives and experiences need to be appreciated in order to promote these feelings while determining educational reforms and innovations.

Increasing the amount of practical work during pre-service education

In order to fulfill teacher candidates' need for competence, it is necessary to increase the amount of practical work during pre-service education. According to results of a study, compared to graduate students, undergraduate students have significantly higher levels of internal regulation. This positive shift in motivation of the students probably stems from the content and the teaching methodology aspects of courses. Students are expected to realize some obligations such as observations in lessons, conducting action research, and instructing in educational

institutions in the final year of the undergraduate level teacher education and in graduate level. Thus, it may be assumed that practical rather than theoretical teaching processes contribute to the intrinsic motivation of students (Koludrović & Ercegovac, 2015; Uysal, 2022). To consider the self-determination theory aspect, practical teaching processes might fulfill self-competence of candidate teachers, which in turn increases intrinsic motivation.

Providing feedback and challenging tasks

The strategies proposed by Niemiec and Ryan (2009) to enhance competence include adopting feedback as to effectiveness of the tasks and providing challenging tasks in the training process. This finding is significant in terms of designing the curriculum used in faculties of education and presenting feedback for teacher trainers.

Decreasing pressure on and interference with teachers' practices

According to the existing studies, decreasing pressure on and interference with teachers' practices is the initial condition to satisfy the need for autonomy. The more teachers' needs are satisfied and the more self-determined they become, the better they understand their students. As a result, they become more enthusiastic about providing them with necessary help. While collaboration between administration and teachers evokes satisfaction among teachers, performance evaluation, pressures from the school authorities, and time constraints undermine their self-autonomy.

According to the study by Taylor et al. (2008) perceived job pressure impacts upon teachers' psychological need for satisfaction negatively. Likewise, according to the results of the study by Pelletier et al. (2002), the less teachers perceive pressure at work (pressure to comply with a curriculum, with performance standards, or with colleagues) and the more they perceive students to be self-determined toward school, the more they become self-determined toward their work. In turn, they become more autonomy supportive with their students. Therefore, teacher educators or administrators need to minimize pressure and control, provide a flexible learning or work environment, and acknowledge feelings in the learning or working environment in order to enhance autonomy (Martinek, 2019; Niemiec & Ryan, 2009). Lastly, local and national policies of education strongly affect teachers' autonomous motivation for teaching. For instance, evaluating teachers' performance based on scores students get from central exams diminish autonomous motivation among teachers (Pelletier et al., 2002).

Additionally, a suggestion on how to support self-determined motivation of teachers through fulfilling their need for competence comes from the self-determination theory itself. Cognitive evaluation theory, a mini-theory within self-determination theory, states that conditions of the social environment positively impact upon intrinsic motivation (Ryan & Deci, 2019). One of the prepositions in this sense is the significance of the external events perceived by the actors. The actors may perceive these events as either informational, amotivating, or controlling. The events providing feedback about one's competence are informational events and they enhance intrinsic motivation. While controlling events apply pressure to think or act in a certain way, amotivating events don't carry any feedback about autonomy or competence. In case actors perceive an external event as amotivating or controlling, their intrinsic motivation will be diminished (Wang & Liu, 2008). Therefore, the administrators providing flexibility in

working place of teachers are more likely to meet the need for competence compared to their counterparts that adopt a controlling approach.

School principals that encourage teachers to participate in major decisions about the school

Self-determination theory (Deci & Ryan, 2000) states that when individuals feel the support of other people in a social context, they are likely to be autonomously motivated. To provide autonomy support, feelings of people should be acknowledged and respected, they should be presented with choices and their relevance should be fostered. When school principals encourage teachers to participate in major decisions about the school and devote an effort to understand the needs of teachers, they could promote autonomous motivation for teaching and autonomous motivation for learning. The study by Roth et al. (2007) showed that the meetings held to discuss innovations and school reform led feelings of safety, care and growth among teachers and consequently increased their sense of autonomy.

Administrators encouraging teachers to take part in professional development activities

Regarding teachers, Carson and Chase (2009) state that administrators encouraging teachers to take part in professional development activities play a supportive role in promotion of self-determined motivation. Similarly, In de Wal et al. (2014) suggest providing flexibility in daily timetables of training in order to enhance autonomy. If teachers decide on the content, timing and kind of the professional development activities they need, their need for autonomy and competence will be fulfilled.

Organizing effective autonomy-supportive trainings for teachers

Results of some existing studies show that in-service training designed in line with principles of self-determination theory is possible to be highly effective in supporting self-determined motivation of teachers. In a study that explored the effect of professional learning programs on primary/elementary teachers in a large-scale professional learning program, it was found out that the program succeeded in increasing autonomous motivation of the participant teachers. The program accommodated teachers' need for relatedness, autonomy and competence by providing constructive feedback and encouragement with the participants. Also, teachers were given ample time, a number of instructional resources and opportunities to showcase their skills. Lastly, the teachers could collaborate and interact with their colleges during the training, which contributed to their need for relatedness (Power & Goodnough, 2019).

In order to find out if autonomous motivation is teachable, Reeve (2002) initially defined characteristic features of autonomously motivated teachers and then created a booklet to teach these behaviors to a group of teachers. According to the researcher, autonomy supportive teacher behaviors are as follows (Reeve, 2002; Reeve, 2006):

● They minimize time for holding instructional materials while maximizing time for listening
● They spare time for individual work of students
● They provide clues instead of solutions to the problems students encounter
● They avoid criticism and directives while praising mastery
● They appreciate student-generated questions

●   Contrary to controlling teachers who feel responsible for the teaching process, expect single and right answers, and motivate them through external incidences; autonomy-supportive teachers are less controlling, demanding or pressuring, which promotes intrinsic motivation.

After determining these behaviors, Reeve (2002) conducted a study to explore if these behaviors were teachable. He delivered a group of teachers an informational booklet about self-determination and autonomy support. On the other hand, another group received booklets about various instructional strategies. The results of the study proved that teachers could learn how to be autonomy supportive with their students in case their prior beliefs about motivation were in agreement with autonomy support. Contrary to the control-oriented teachers who found the autonomy supportive style to be inferior, the ones who found autonomy supportive style superior to their existing style were more willing to display autonomy supportive behaviors. Similarly, in another study by Reeve et al. (2004) the teachers trained on how to support students' autonomy through a training consistent with Self-determination Theory displayed significantly more autonomy-supportive behaviors than did non-trained teachers.

Discussion and Suggestions

Considering the relationship between benefits of intrinsic motivation for students, teachers need to be intrinsically motivated towards the teaching profession. This study aims to identify the variables in a positive relationship with intrinsic, or self-determined motivation of teachers and teacher candidates based on the existing studies. It is also aimed to make suggestions on how to increase their intrinsic motivation from the perspective of self-determination theory. In this review study, qualitative data analysis method was used. 48 existing studies fulfilling the pre-determined criteria were reviewed to answer three three research questions.

Regarding the first research question - academic motivation types of teachers and teacher candidates-, it is hard to define the motivation level of teachers for the teaching profession, as there is a scarce body of literature. There seems to be a need for studies exploring this topic. In particular, the studies describing motivation types of teachers are needed because most of the studies describing academic motivation types in this study were conducted with teacher candidates. Regarding the amotivation, compared to intrinsic and extrinsic regulations, number of teacher candidates with amotivation is quite low, which means that they consciously preferred the profession because of intentional -internal or external- reasons. The decision to become a teacher is not unintentional for most of the teacher candidates.

Results of a study (Heinz, 2015) that was conducted to explore the motivation of candidate teachers in 23 different countries to choose the profession revealed that intrinsic factors are enjoyment of teaching, job satisfaction, creativity, and an interest in teaching subject(s) and these factors were most influential on the decision to remain in the profession. Extrinsic factors that motivated teachers to remain in the profession are job security, hours, pay, and status (Heinz, 2015; Akar, 2012). These findings prove that extrinsic or intrinsic reasons lead students to choose the profession, so they adopt extrinsic as well as intrinsic motivation rather than amotivation.

In line with the second question - Why do we need intrinsically motivated teachers and teacher candidates? -, the results of the existing studies were analysed considering the relationship between intrinsic motivation and positive outcomes. The results showed that teachers' intrinsic motivation positively correlates to competence in teaching, job satisfaction

and retention, students' motivation for learning, willingness to be involved in and sustain professional development, reduced teacher burnout, goal orientation, decrease in severity of reality shock, productive teaching style of teachers, and learning styles of pre-service teachers. The relationship between the intrinsic motivation and some positive outcomes needs to be confirmed by further empirical studies. Student motivation, competence in teaching, job satisfaction and retention, and willingness to involve in and sustain professional development are the topics that were frequently searched; however, findings about the relationship between intrinsic motivation and productive teaching styles, decrease in severity of reality shock, and learning styles should be confirmed by further studies. Last, there is a scarce body of literature about the relationship between teacher burnout, and goal-orientation, so further empirical studies are needed in order to confirm these potential relationships.

With regard to the relationship between intrinsic motivation of teacher and student involvement, a prior study revealed that level of student involvement early career teachers create for students in their classes is influential on their decision to remain in the profession, because involving students in lessons supports feelings of personal fulfilment and professional challenge that are significant in terms of job satisfaction of teachers (Burke et al., 2013). Similarly, another study's (Javornik Krečič & Ivanuš Grmek, 2015) results demonstrated that candidate teachers in a faculty of education chose the profession because of self-realization reasons such as setting a good model for students and a chance of using abilities such as singing, painting or dancing. The first self-realization reason is related to students' motivation for learning while use of abilities is related to competence in teaching. Therefore, the prior studies' (Burke et al., 2013; Javornik Krečič & Ivanuš Grmek, 2015) results demonstrate that the feeling of self-competence and developing teacher student rapport are the factors that support intrinsic motivation of teacher candidates.

Additionally, supportive work environment for teachers and learning environment for candidate teachers was found to be significant in terms of intrinsic motivation. This finding was confirmed by the results of the prior studies. For example, in an existing study, it was concluded that teachers that perceive work environment (school principals and colleagues) more supportive and less pressing were more autonomous in attending professional development activities (Zhang et al., 2021; Zhang et al., 2022). Similarly, the study conducted by Burke et al. (2013) evidenced that beginning teachers valued collegial support that they received in their school environments. In a similar vein, candidate teachers valued the supportive learning environments in faculties of education. According to the results of an existing study (Cherian, 2007), the students appreciated opportunities to question teaching practices. Besides, they preferred co-planning and co-teaching with associates because such techniques encouraged them to self-reflect on in-class applications and educational philosophies. On the other hand, overpressure that come from mentors and provincial standardized curriculum reforms prevented teacher candidates from exploring social justice, constructivist, and inquiry-oriented pedagogies. In conclusion, while supportive work environment or learning environment play a productive role on increasing intrinsic motivation, pressure plays a counterproductive role.

Considering the results about the third research question - How can we promote intrinsic motivation in teachers and teacher candidates? -some further studies might be useful in increasing intrinsic motivation of teachers and teacher candidates. Besides these suggestions, future research on specific topics will be useful for defining academic motivation types of

teachers and teacher candidates. Exploration of teachers' professional identity and vision formation are the ways to enhance autonomy for teaching. Similarly, the studies investigating values, dreams, or hopes of teacher candidates or the ones that have just started the profession are significant in terms of vision formation and professional identity. Besides, the studies exploring the way teachers perceive the schools are significant in terms of taking necessary precautions and seeking out solutions to encourage safe and supportive school environments. Similarly, the studies that investigate the way teacher candidates perceive education faculties are crucial to present a supportive learning environment during the pre-service training. Such studies are also crucial in terms of re-designing the curriculums used in faculties of education. Last, the studies exploring leadership type of school principals might be useful in revealing the leadership types that support intrinsic motivation of teachers. Furthermore, it is necessary to carry out curriculum development studies that aim to design in-service training curriculums on autonomy-supportive leadership for school principals. It is also necessary to evaluate them and report the results.

The results related to suggestions on how to increase intrinsic motivation of teachers and teacher candidates provides valuable clues about developing curricula for education faculties. Curricula used in faculties of education in Turkey include theory-oriented instruction and limited in-class applications at schools. In an existing study, it was reported that the rate of branch theory is 50-60 percent and the rate of professional teaching theory is 25-30 percent in the curriculum used in education faculties. Additionally, pre-service teachers have to spend 28 weeks at school in 7th and 8th semesters. During the 7th semester, they are required to observe lessons and they start to teach during the 8th semester, so they are not provided ample opportunity to teach during their pre-service training (Çakıroğlu & Çakıroğlu, 2003; Öztürk, & Aydın, 2019). However, results of the existing studies (Koludrović & Ercegovac, 2015; Uysal, 2022) demonstrate that in order to support intrinsic motivation of teacher candidates, amount of practical work needs to be increased. Practical teaching processes fulfill self-competence of candidate teachers, which in turn increases intrinsic motivation.

Professional development is another factor that support intrinsic motivation of teachers. The study by Javornik Krečič and Ivanuš Grmek (2015) demonstrated that professional guidance deep into teachers' ecological environment is useful in constructing ideal teaching processes. As a result of teaching practice on a deep level, teachers alter or reconstruct their values of professional development and make the teaching work much more meaningful, which is significant in facilitating teachers' positive feelings about the teaching process (Liu et al., 2019). In conclusion although professional development opportunities are significant in terms of reflecting on in-class practices, professional development activities push teachers to reconstruct their values and teaching practices in case they are on deep level.

Additionally, according to the results, school environment perceived strong in collegiality is a factor supporting intrinsic motivation of teachers. Similarly, in an existing study it was evidenced that beginning teachers valued collegial support that they received in their school environments as well as the opportunities for collaboration (Burke et al., 2013). The findings related to collegiality and collaboration are significant for school administrators and mentoring programs.

Last but not least, findings of some existing studies (Power & Goodnough, 2019; Reeve, 2002; Reeve, 2006) gave evidence that autonomy supportive training is effective in increasing

autonomous motivation of in-service teachers. However, no study has been conducted to explore the effect of such interventions on pre-service teachers, so further work is necessary to shed light on the effect of autonomy-supportive interventions on pre-service teachers.

Conclusion

This study aims to identify the variables that are in a positive relationship with intrinsic, or self-determined motivation of teachers and teacher candidates based on the existing studies. Also, the study aims to make some suggestions on how to increase intrinsic motivation of the teachers and teacher candidates from the perspective of self-determination theory. Keeping the aim in mind, the researcher utilized the results of 48 existing studies that explored teachers' intrinsic motivation in relation to different parameters and she sought answers to three research questions.

Initially, the study's results revealed that it is significant to integrate courses and practices into in-service and pre-service trainings. Because results of the past studies indicated that intrinsic motivation is pivotal in terms of positive teacher behaviors and students' academic success and autonomy. Besides, the results of the study presented a theoretical frame as to teachers' intrinsic motivation and shed light on the possible directions for future studies. The theoretical frame demonstrates the proper teacher behaviors affected by their intrinsic motivation level. However, some topics need to be explored more deeply, so further research is necessary. Teaching styles and learning styles are the examples of topics that need to be proved via further research. Therefore, the results of the current study are significant in terms of filling in the gaps in the related body of literature.

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