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**PHD THESIS ABSTRACT**

# PREDICTORS OF LEARNING MOTIVATION AND ITS EFFECT ON STUDENTS' SCHOOL PERFORMANCE

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**Keywords:** learning motivation, basic psychological needs, self-determination theory, teacher enthusiasm, Waldorf pedagogy

# 1. CHAPTER I. THEORETICAL FRAMEWORK

## 1.1. Introduction and research questions

Motivation is a complex and broad concept that has been intensively studied in recent decades. Motivation, at a general construct level, is the ability of people to initiate a specific action, providing the energy and direction to perform a specific behavior (Ainley & Ainley, 2019 apud Renninger & Hidi, 2019). The effects of motivation are complex; it influences learning and improves performance. Motivation can be explicit and conscious, or implicit and unconscious (Ryan, 2012) and influences when we decide to learn, what we learn and how we learn (Schunk, 1995).

Specifically addressing *motivation for learning* in the educational environment, it is operationalized as "the result of the interaction between the characteristics of the child and the environment, i.e. the influences exerted by the educational and family environment" (Opre et al., 2015). According to Gottfried's (1990) theory, academic motivation is defined as the enjoyment of learning in the school environment, manifested by orientation towards mastery of knowledge, curiosity, perseverance, intrinsic engagement with tasks and tackling challenges, including difficult and new ones

The paradigm on which we have focused in order to study the concept of motivation in more detail is Ryan and Deci's (2000) *Self-Determination Theory* applied to pre-university education. The central idea of this theory in schooling concerns the impact of basic psychological need satisfaction on students' motivation to learn. The more autonomous the motivation for learning is, guided from the enjoyment of learning, the higher the achievement of students will be (Howard et al., 2021). In the following chapters we will detail the relevant aspects of this theory for our research approach.

### 1.1.1. Self-determination theory

Ryan and Deci's (2020) *Self-Determination Theory* (*SDT*) has been the basis for the development of an extensively integrated and implemented paradigm in educational settings. This theory provides one of the most complex categorizations of human motivation, and is founded on the premise of the importance of autonomy and control (Hartnett et al., 2011), i.e., the need for the learner to feel competent and connected to the social environment. Satisfaction of the three basic psychological needs (autonomy, competence and relatedness) provides the framework for the unfolding of the learning process, behavioral modification and personality development of the human being.

According to *Self-Determination Theory*, motivation can be operationalized from demotivation to extrinsic motivation and intrinsic motivation, respectively, the latter being the most autonomous level of human motivation (Ntoumanis et al., 2021). The internalization process of external motivation ranges from fully external to fully internal regulation. External regulation and introjective regulation are forms of motivation controlled by external factors, whereas *identified regulation* and *integrated regulation* are forms of external motivation regulated by internal factors (Ntoumanis et al., 2021).

### 1.1.2. Basic psychological needs

According to Ryan and Deci's *Self-Determination Theory* (2000), at the basis of changes in human behavior is motivation influenced by the satisfaction of three basic psychological needs: *autonomy*, *competence* and *relatedness*. Their satisfaction correlates with autonomous motivation, well-being, adaptive behaviors and good physical health.

The need for *autonomy* refers to a person's ability to engage in a task on their own initiative and without external pressure. The need for autonomy is the most effective in predicting the stimulation of intrinsic motivation, but correlates less well with other typologies of human motivation (Bureau et al., 2022). The need for *autonomy* is not about independence,

but about being able to make choices based on one's own values, interests, and preferences (Ryan & Deci, 2000). Children who are given freedom of choice have good self-regulation skills, higher levels of self-efficacy and self-esteem (Grolnick & Ryan 1989, apud Vanderfaeillie et al., 2020).

The need for *competence* is the ability to enter unfamiliar situations with a willingness to try to solve them. There is a difference between self-efficacy and competence. Self-efficacy is a person's confidence in their own ability to successfully complete a task (Bandura, 1982), "it is not related to how well certain skills are developed, but rather to confidence in the ability to use it optimally" (Opre et al., 2015, p. 41)

The need for *relatedness* represents the need to interact with others (Vanderfaeillie et al., 2020), feeling secure in these human connections, and the person feels understood and valued in this way (Ryan & Deci, 2017). The need for *relatedness* correlates most weakly with the development of autonomous motivations, but this need to belong and connect to authentic relationships is extremely important for other facets of the educational act, such as identification with the school image (Gray et al., 2018).

Bureau et al.'s (2022) meta-analysis (Bureau et al., 2022) exemplifies that satisfying the need for *competence* is the strongest predictor for the emergence of autonomous motivation (intrinsic or identified motivation), followed by the need for *autonomy* and *relatedness*. The need for *autonomy* is the most effective predictor of intrinsic motivation, almost at the same level as the need for *competence*, but correlates less well with the other motivation typologies.

### 1.1.3. Motivation for learning

According to Ryan and Deci's (2000) *Self-Determination Theory* (*SDT*), motivation is a construct that ranges on a continuum from demotivation to intrinsic motivation, within this range there are four typologies of extrinsic motivation (see Figure 1)

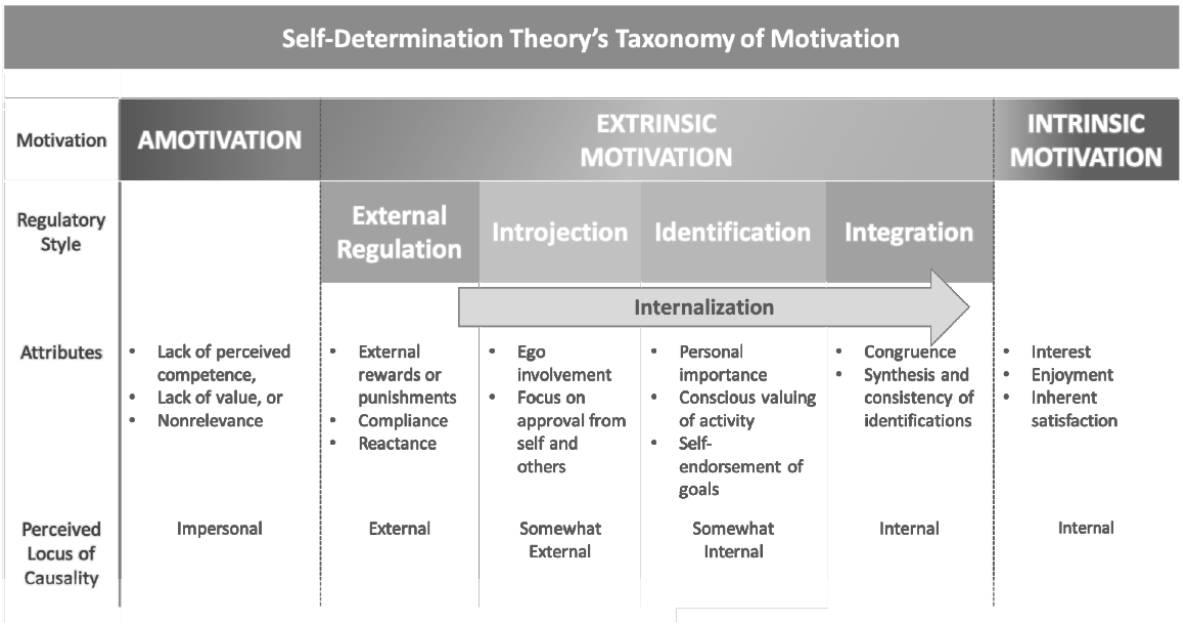


*Figure 1*. Taxonomy of motivation according to *Self-Determination Theory* (adapted from Ryan & Deci, 2000)

*Demotivation* refers to a lack of perceived competence, lack of motivation, no direction and no relevance regarding the accomplishment of a given task (Vallerand et al., 1992). Demotivation is positively associated with low expectations (Wigfield et al., 2017), low self-efficacy (Bandura, 1997) and the phenomenon of disempowered learning (Abramson et al., 1978 apud Howard et al., 2021).

*Extrinsic motivation* contains 4 subcategories, namely *external regulation* (which is entirely guided by external factors), *introjective regulation* (which is partly external), *identified regulation* (partly internal) and *integrated regulation* (entirely internal). *External regulation* and *introjection* are controlled motivations, whereas *identified* and *integrated regulation* are categorized as autonomous motivations (Bureau et al, 2022; Guay et al., 2013). *External regulation* is integrally guided by factors external to the human being, with task accomplishment occurring to avoid punishment or obtain a reward, and is a fairly conformist type of motivation (Howard et al., 2021).

*Introjective regulation* or *introjection* is that typology of external motivation that is only partially guided by factors outside the person's control, because the main mobilizing factors are the avoidance of shame, guilt, worry, or pride gratification (Klootwijk et al., 2021). *Introjective motivation* does not necessarily arise as a result of a conscious choice, but is rather an adaptation to external demands and expectations that have been internalized, and these become part of the individual's personal belief system

*The identified regulation* is partly autonomous and is based on the idea of accomplishing a certain task that is important and meaningful for human beings, in the case of students, thus they select the subjects they will learn more depending on how important they are for passing exams.

A more recently added typology of external motivation is *integrated regulation* (Bureau et al., 2022), which is the most autonomous and involves accomplishing a task due to the congruence between commitment and the personal value of that activity.

*Intrinsic motivation* refers to the situation in which "a task is accomplished because its mere accomplishment in itself is rewarding. This type of motivation is based on interest, curiosity, the desire to develop one's own abilities, or the pleasure associated with accomplishing it" (Opre et al., 2015, p. 41). Intrinsic motivation is the highest level of autonomous motivation (Bureau et al., 2022)

### 1.1.4. Teachers' teaching style

According to *Self-Determination Theory*, teachers' teaching styles can be situated, depending on how much they focus on meeting students' basic psychological needs, having either a control-based approach or a support-based approach (Ryan & Deci, 2017). See below for a categorization of the teaching styles that teachers may approach, a predominantly controlling or a predominantly supportive teaching style, depending on how much teachers manage to support or hinder meeting students' basic psychological needs (Ahmadi et al., 2023):

| AUTONOMOUS-SUPUPORTIVE | CONTROLLER |
|---|---|
| **Support autonomy** - Create an environment in which students can express their will, are given the opportunity to decide on certain issues during lessons and are stimulated to be intrinsically motivated to learn | **Narrows autonomy** - Creates an environment where students feel pressure to conform to the teacher's agenda, using pressure tactics such as yelling, scolding, bullying |
| **Support competence** - Create an environment in which students feel able to achieve their goals and be creative in solving problems that arise during lessons | **Narrows competence** - Creates an environment where students feel they are not capable of achieving their goals and are unsure of what is expected of them |
| **Support relationships** - Create an environment where students feel accepted, understood and cared for | **Narrows relationships** - Creates an environment where students feel humiliated, rejected, ignored or judged |

### 1.1.5. Teacher's enthusiasm

In the literature, teacher enthusiasm has been studied as an energetic teaching style, but a more precise definition refers to the joy, exhilaration and pleasure with which a teacher delivers his or her lessons (Kunter et al., 2011), as well as the energy and vitality with which he or she carries out his or her teaching activities (Patrick et al., 2000). Teacher enthusiasm is seen as an essential component of quality teaching, with the teacher displaying a genuine interest in their subject matter and a vibrant and inspirational teaching style (Patrick et al., 2003).

Teacher enthusiasm has been divided into several typologies. 'Displayed enthusiasm' (en. *displayed enthusiasm*) refers to visible manifestations of enthusiasm, expressed through verbal and non-verbal language, dynamic facial expressions and active engagement (Collins,

1978). In contrast, '*experienced* enthusiasm' (en. *experienced enthusiasm*) reflects positive emotions felt and a genuine interest in teaching the subject (Keller et al., 2014). Research suggests that lived enthusiasm has more benefits than observed enthusiasm, fostering intrinsic motivation for learning (Lazarides et al., 2018) and stimulating positive emotions among students (Frenzel et al., 2009a). When both forms of enthusiasm occur simultaneously, the teacher conveys genuine enthusiasm to students (Keller et al., 2018).

### 1.1.6. Parenting style

According to *Self-Determination Theory* (Ryan & Deci, 2017), parenting style influences how a child's psychological needs for autonomy, competence, and relatedness are met. Depending on the parents' ability to capitalize on these needs of their own children, they may exhibit an autonomous-supportive or a controlling parenting style. In the following lines we will detail the particularities of these two parenting styles.

| AUTONOMOUS-SUPUPORTIVE | CONTROLLER |
|---|---|
| **Provides support for autonomy**: parents who adopt an autonomy-supportive style give their children the framework to make their own decisions, while bearing the consequences of the behavior. They encourage children to take initiative, stand up for their point of view and respect their perspective. Parents minimize controlling behavior, giving children opportunities for self-regulation | **Exerting pressure:** parents who adopt a controlling style impose on their children how to act, often using rewards and punishments as levers of manipulation, imposing their own opinions on them, disregarding their children's views |
| **Provides structure**: parents who provide structure guide children, giving them the framework to experiment, focus on developmental goals, provide feedback on demand and set limits in a non-invasive way | **They convey the idea of chaos:** parents who show chaos in the dynamics with their children do not offer them predictability, do not have clearly established rules in the family dynamics, are not constant, show behavioral and emotional fluctuations |
| **Offer warmth and involvement**: parents who offer warmth and involvement in the dynamics with their children, spend quality time with them, invest attention and resources in the relationship with them, are supportive, empathetic, respond to the psychological and emotional needs of children | **Showing rejection**: parents who show rejection tell their children that they are not wanted, not appreciated, use criticism and blaming themselves, and are not satisfied with what they receive from their children |

### 1.1.7. Waldorf alternative education system

The specificity of Waldorf schools (or *free schools* - as they are also called) lies in the fact that the aim is not to specialize the child in a particular field, but to prepare him or her in a multilateral way, stimulating interest and passion for everything around him or her. The pedagogical vision of Waldorf institutions refers to the fact that each child's individuality must be taken seriously (Steiner Federation, 2021 apud Sele, 2021).

Some of the particularities of Waldorf education are the following (Carlgren, 1994):

- The school day begins with subjects that activate knowledge and understanding, followed by subjects that require rhythmic repetition (foreign languages, eurythmy, music and religion), and then artistic-practical activities (gardening, handicrafts, etc.);
- The teaching of the main subjects (mother tongue, mathematics, chemistry, physics, biology, etc.) is carried out in modules also called "epochs", i.e. the first two hours of the school day form the main course, taught daily over a period of 2-4 weeks;
- The main course of the epoch contains three parts: a rhythmic part for harmonizing the energies with which the pupils come to school (stimulating their will), a cognitive part for the development of the intellect and a story-telling part for stimulating the senses;
- Rhythm is an extremely important element in Waldorf pedagogy, there is a rhythm of time, day, month, season and year;
- The focus is on the integration of all children, including those categorized as problematic or difficult (i.e. those with special educational needs - SEN);
- Homework is recommended to be optional up to grade 6 and delivered in a way that will spark students' interest;
- The central sustaining force behind the work in school is the pupil-teacher-parent triangle;

- textbooks are totally non-existent in the primary grades and are quite avoided in the upper grades as well, since the subject matter conveyed through oral exposition can more accurately reproduce the red thread of the lesson being taught;
- An important part of Waldorf pedagogy are the artistic and practical courses of modeling a sculpture, practicing a piece of music, preparing a role in a play, etc., the purpose of these activities being the expression of the soul's impulses;
- the subject *eurythmy* is taught starting with the first grade, a discipline of artistic movement in which space is experienced more deeply, willpower is cultivated and the aim is to achieve harmony between easy and difficult, self-imposed goals and the requirements of the exercise performed in a group;
- The teaching of two foreign languages begins in first grade, although Waldorf pedagogy is known for its slow process in writing, reading and counting;
- holding weekly teacher councils to discuss aspects of pedagogical work, different concrete teaching situations or the presentation of students, involving all the teachers who teach their classes;
- in the lower grades, students receive specific feedback from teachers, only in the higher grades the idea of a *grade* is introduced;
- At the end of each school year, students receive a detailed evaluation with personalized characterizations by all the teachers who taught them that year;
- monthly celebrations are organized where younger pupils can observe the level they will reach by admiring the older pupils, and older pupils can notice the stages they have already passed through the school by observing the younger ones;

- Parental involvement is very important and imperative for the smooth running of school activities (parties, bazaars, celebrations, etc.) and extracurricular activities (camps, excursions, etc.).

#### *1.1.7.1. Waldorf education in Romania*

Several thematic conferences on Waldorf pedagogy were held in Romania for the first time in the 1990s. In the year 2024-2025, according to the information on the website of the Waldorf Federation of Romania (https://waldorf.ro/), there are 1567 pre-school children and 4060 pupils enrolled in the Waldorf school network in Romania. Out of the total number of pupils, there are 2056 pupils in primary education (50.64%), 1400 pupils in secondary education (34.48%) and 604 pupils in secondary education (14.88%). 3849 pupils in urban areas and 211 in rural areas, 3133 pupils are taught in Romanian and 927 pupils are taught in Hungarian. There are Waldorf high schools in Cluj-Napoca, Timisoara, Iasi and Bucharest. Most of them are state schools, financed by the municipalities and the Ministry of Education and Research. The Waldorf Federation of Romania is constantly receiving requests to approve the establishment of new Waldorf classes all over Romania, and parents voluntarily support the educational activities.

### 1.1.8. Education in the COVID-19 pandemic

The major effect of the COVID-19 pandemic was on resetting the way information content was taught. Students were affected by poor peer interaction in online classes (Hilger et al., 2021; Maftei et al., 2022), increased time spent in the digital environment (Rider et al., 2021), and increased levels of depression, anxiety and social isolation (Brătucu et al., 2022). The students' high level of anonymity during online classes allowed them to carry out parallel activities, which led to a decrease in concentration and self-regulation ability (Valenzuela et al., 2020), while also affecting the quality of the teacher-student relationship (Lamanauskas et

al., 2021). Also, during the pandemic, students' motivation for learning decreased (Klootwijk et al., 2021).

The Romanian educational system has moved online since March 2020 (Edelhauser et al., 2020), and in the first six weeks of the school year 2020-2021, 3 scenarios of educational action were implemented (Dinculescu, 2021):

a) *The green scenario*: education with physical attendance, where less than one person per 1000 population was infected;
b) *The yellow scenario*: hybrid schooling where half of the student population was in school and the other half participated online, where one to three people 1,000 inhabitants were infected;
c) *The red scenario*: fully online education if more than three people per 1000 inhabitants were infected.

From November 2020 all classes were conducted online until early February 2021 when pupils returned to school and students returned to college (https://romania.europalibera.org/). It was not until the summer of 2022 that the pre-pandemic atmosphere returned with full face-to-face classes being conducted in the traditional face-to-face format, except for a few sporadic weeks of online teaching (Voss et al., 2023).

#### *1.1.8.1. Waldorf education in the COVID-19 pandemic*

During the pandemic, Waldorf pedagogy taught online lost much of its specificity. Elements related to the creativity of lesson delivery and the development of practical skills could, sometimes with great difficulty, be taught online (Vagedes et al., 2023). Moving the educational process online has been made difficult in Waldorf schools because IT classes are only taught in this system after the onset of puberty of the pupils (Hubner, 2015 apud Turos,

2022), which is why in some families there was no technological support and in others there was no openness for this way of teaching.

### 1.2. Relevance of the research

Based on *the Self-Determination Theory* paradigm of learning motivation, we were mainly interested in analyzing the relationship between basic psychological needs and the typology of students' learning motivation. We also set out to study the predictors of motivation, those that influence the teaching-learning process, focusing on the teaching style and enthusiasm of teachers, respectively the parenting style of both parents. After analyzing the impact of the predictors of motivation on the learning process, we set out to investigate the influence of motivation on students' academic performance.

We also carried out comparisons between the two education systems involved in the research (traditional versus alternative Waldorf state education system) regarding the effects of motivation for learning on students' performance in the *Romanian language and literature* baccalaureate exam, performance measured by the grade obtained in this national examination. The parameters that we controlled in order not to influence our data are self-efficacy, depression and anxiety levels. Self-efficacy is considered an important predictor of motivation for learning and school performance (Code, 2020), representing the metacognitive ability to reflect on one's own mental and behavioral changes, contributing to students' sustained interest, motivation and academic performance (Bandura, 2006). Depression and anxiety are factors that can significantly influence coping strategies and are correlated with a decrease in professional effectiveness (Golonka et al., 2019), especially in contexts with high external pressures (Shao et al., 2020). They affect students' quality of motivation and school performance. Depression is associated with demotivation (Kunanitthaworn et al., 2018), while high levels of anxiety correlate with high academic performance but low intrinsic motivation (Majali, 2020), thus impacting quality of life, especially among students.

# 2. CHAPTER II. RESEARCH OBJECTIVES AND METHODOLOGY

## 2.1. General objectives of the thesis

The overall objective of the thesis was to investigate the predictors of learning motivation and its effect on students' academic performance. In this regard, we were interested in which variables have a relevant impact on learning motivation in order to achieve positive academic performance among students.

A first specific objective of the present work was *(1) to investigate the relationship between basic psychological needs and the typology of learning motivation of* middle and high school students (see subchapter 3.1.). The period of data collection coincided with the national state of alert in Romania due to the COVID-19 pandemic, which was a significant moment to obtain relevant information about the Romanian educational system.

A second objective was (*2) to analyze the impact of teaching style and teacher's enthusiasm, respectively parenting style on the three basic psychological needs of students* (autonomy, competence and relatedness). The correlation between basic needs and motivation for learning has been intensively studied in the literature, which is why we wanted to investigate the predictors that influence the satisfaction of these three human psychological needs (see subchapter 3.2.).

Observing the impact of the perception of teacher enthusiasm on classroom dynamics in the study conducted before the pandemic, we set a third objective on *(3) investigating the impact of teacher enthusiasm on students' motivation for learning and the role that autonomy, competence and relatedness may play in this relationship* during online classes (see sub-section 3.3.). The period of data collection took place almost one year after the beginning of the COVID-19 pandemic, a period during which Romanian education was almost entirely online.

With regard to the fourth specific objective we aimed to study *(4) the link between motivation for learning and school performance among students in the 12th grade, the* research being carried out one year after the effects of the pandemic on the population were mitigated (see subchapter 3.4.). School performance was assessed by means of the marks obtained by the students in the *Romanian language and literature* baccalaureate exam, in order to avoid any discrepancies in the subjectivity of the assessment. The results were analyzed by comparing the two state education systems: traditional and alternative - Waldorf.

The last objective of our research was to investigate the changes that occurred with respect to the analyzed variables from T1 (March - April 2020) to T2 (February 2021), more precisely *(5) how the levels of the studied parameters fluctuated after ten months of the COVID-19 pandemic* (see subchapter 3.5.). The variables studied in T1 and T2 were the levels of students' depression and anxiety, specific self-efficacy in the subject *Romanian language and literature*, students' perceptions of teacher enthusiasm for the subject, changes in basic psychological needs, typology of motivation for learning, and positive and negative emotions. The results were analyzed by comparing the two state education systems: traditional and alternative - Waldorf.

In the following, we explain the methodology used to achieve the objectives described earlier in this chapter.

## 2.2. Research methodology

The overall objective of this thesis was to investigate the *predictors of learning motivation and its effect on students' academic performance.* In order to achieve this general objective, 5 research studies were conducted, each of which focused on one research area. The same set of questionnaires was completed at all three data collection times by students in the two schools selected for the present research. With the data collected in T1 we conducted two studies, with the data collected in T2 we conducted the 3rd study, with the data collected in T3

we conducted the 4th study, and the last study was a comparison of the data collected in T1 and T2 (pre and post-pandemic). One can see below the planning of the three time points of data collection:

*T1- in March and April 2020:*

(1) The study investigating the relationship between basic psychological needs, learning motivation and self-efficacy of students;

(2) The study on analyzing the effects of mother and father's parenting style, teaching style and teacher's enthusiasm on students' basic psychological needs (autonomy, competence and relatedness);

*T2- in February 2021:*

(3) The study investigating the impact of teacher enthusiasm on students' motivation for learning and the role that students' needs (autonomy, competence and relatedness) may play in this relationship;

*Q3- in May 2022:*

(4) Study on analyzing the relationship between motivation for learning and performance in the *Romanian language and literature* baccalaureate exam*;*

*Comparison of T1 and T2 data:*

(5) A study investigating the effects of the COVID-19 pandemic on the relationship between learning motivation, basic needs, perceived teacher enthusiasm, self-efficacy and students' emotions.

The research model that we proposed is a large and complex one, which is why we could not fully test it in the doctoral studies. Due also to the pandemic context in which the research was conducted, we were only able to test some of the variables. Some complex relationships could not be tested as we did not have a large enough sample, and the basic limitation of the research is that we did not have access to collect as much data as we would have liked. The

results are not innovative in terms of the method used, but rather in capitalizing on the pandemic context. However, in this context we have analyzed the relationships between all the research variables within the general framework of Ryan and Deci's (2000) *Self-Determination Theory*, but we will present only those that were significant and had an impact on the scientific approach.

# 3. CHAPTER III. ORIGINAL RESEARCH CONTRIBUTIONS

## 3.1. Study 1: The relationship between basic psychological needs, motivation and self-efficacy in a sample of students in Cluj-Napoca, Romania[1]

The main aim of the present study is to investigate the association between basic psychological needs (autonomy, competence and relatedness), motivational orientations (intrinsic motivation, identified regulation, introjective regulation and external regulation) and self-efficacy for learning *Romanian language and literature*.

The study hypotheses were:

1. Basic psychological needs (autonomy, competence and relatedness) will predict intrinsic motivation for learning;
2. Self-efficacy for learning will be positively correlated with intrinsic motivation;
3. Self-efficacy for learning will be positively correlated with integrated adjustment;
4. Self-efficacy for learning will negatively correlate with external adjustment;
5. Girls will have higher self-efficacy than boys;
6. Girls will be more intrinsically motivated than boys;
7. Boys will have more external motivation than girls.

### 3.1.1. Methodology

#### *3.1.1.1. Participants*

Participants in this study were 363 middle and high school adolescents with a mean age of 15.54 years (*SD* = 2.00).

[1] Mărincaș, A., Dumulescu, D., Pintea, S. & Opre, N. A. (2021). The relationship between basic psychological needs, motivation and self-efficacy in a sample of secondary and high-school children from Cluj-Napoca, Romania. *Studia Universitatis Babes-Bolyai, Psychologia-Paedagogia*, *66*(1), 77-90.

#### *3.1.1.2. Tools*

***The Basic Psychological Needs Questionnaire*** is based on the principles of Self-Determination Theory and measures students' basic psychological needs. The instrument has been translated by the authors from the standard version of the BPNS (adapted from Carreira, 2012) and has been adapted to refer to the subject *Romanian language and literature*. For our sample, Cronbach's alpha coefficient values were .87 for autonomy, .73 for competence and .74 for relatedness.

***The Academic Self-Regulation Questionnaire****:* the Romanian version of the instrument was translated by the authors from the standard version of the SRQ-A (Ryan & Connell, 1989) and was adapted to identify motivation for learning in the subject of *Romanian language and literature.* Cronbach's Alpha Cronbach coefficient values in our study were .75 for external adjustment, .79 for introjective adjustment, .86 for identified adjustment, and .87 for intrinsic motivation.

***The Self-Efficacy Questionnaire of the MSLQ*** (Motivational Strategies for Learning Questionnaire) created by Pintrich et al. (1993) is a self-report scale used to identify students' motivational orientations, where self-efficacy refers to a person's confidence to successfully cope with the tasks they face. In the present study, we assessed specific self-efficacy, punctually for the subject *Romanian language and literature*. The Alpha coefficient is .93 for self-efficacy. In our study, the Cronbach's Alpha coefficient was also .93.

#### *3.1.1.3. Procedure*

Questionnaires were administered online at the beginning of the pandemic period in March 2020 and took approximately 10 minutes to complete. Participants completed the questionnaire outside regular school hours. Students were asked to complete an online questionnaire focused on their academic self-regulation strategies, satisfaction of basic

psychological needs (in relation to the discipline of *language and literature*), and academic self-efficacy.

### 3.1.2. Results and data analysis

The collected data were analyzed using SPSS 21.1 Statistics. To test the first hypothesis, we performed a linear regression analysis. Statistical processing results showed that basic psychological needs (autonomy, competence, and relatedness) predicted intrinsic motivation ($r^2$ = .53, p < .001). Thus, the model explained 53% of the variability in intrinsic motivation ($\beta$ coefficients were .42 for autonomy, .20 for competence, and .22 for relatedness, $p$ < .001). The second, third, and fourth hypotheses were tested by a correlational analysis, and the results indicated that self-efficacy was positively correlated with intrinsic motivation ($r$ = .41, p < .01) and identified regulation ($r$ = .29, p < .01), and negatively correlated with external regulation ($r$ = -.14, p < .01).

In terms of gender differences, *t-tests* revealed significant differences between girls and boys in learning self-efficacy ($t$ = 2.48, $p$ = .01), with girls having higher self-efficacy ($M$ = 46.96, $SD$ = 8.7) than boys ($M$ = 44.38, $SD$ = 9.9); Cohen's $d$ was .27. Also, girls reported higher intrinsic motivation than boys ($t$ = 2.63, $p$ = .01; $M$ = 22.41, $SD$ = 4.56, $M$ = 20.93, $SD$ = 5.67) and Cohen's $d$ was .28. On the other hand, boys reported higher external adjustment than girls ($t$ = 2.08, $p$ = .003; $M$ = 24.43, $SD$ = 5.1, $M$ = 23.17, $SD$ = 5.39) and Cohen's $d$ was .24. There were no significant differences between boys and girls on introjective adjustment and identified adjustment scores.

### 3.1.3. Discussion and conclusions

First, our findings revealed that students whose basic psychological needs were met had higher intrinsic motivation for learning. More specifically, autonomy, competence and

relatedness predicted 53% of intrinsic motivation for a specific subject (*Romanian language and literature*), which is in line with previous studies emphasizing the idea that girls are more interested in language learning (mother tongue or foreign). In contrast, boys showed lower curiosity, enjoyment (Carreira, 2011) and engagement (Oga-Baldwin & Nakata, 2014) with these school subjects.

Second, students who had positive beliefs about self-efficacy in learning reported higher identified and intrinsic motivation. Therefore, these students are better able to connect their learning to meaningful goals and find inherent interest in learning. On the other hand, high self-efficacy was negatively correlated with external regulation. Thus, students who believed in their ability to succeed were less likely to be influenced by external rewards and less likely to avoid negative consequences.

Third, another important result of our study reflects gender differences in motivation and self-efficacy. Specifically, in terms of self-efficacy, female students reported more positive beliefs about their learning abilities than boys, which is a finding also confirmed in previous studies. In a recent study (Oga-Baldwin & Fryer, 2020), girls with higher self-efficacy showed higher identified motivation. In contrast, boys reported lower self-efficacy, which was associated with external regulation for language learning (native or foreign).

Fourth, girls in our study exhibited stronger identified regulation than boys, whereas boys utilized more external regulation. Specifically, girls were better able to set meaningful learning goals and connect their learning to their values, whereas boys were more motivated to obtain external rewards or avoid negative consequences (Dorfman & Fortus, 2019). A recent study showed that girls have lower levels of intrinsic motivation in math, but not lower performance than boys (Lazarides & Lauermann, 2019). This lower motivation in girls leads to a preference for careers in philological fields.

The effects of stereotyping may also contribute to the differences between students' academic performance and self-perceptions (Steel, 1997). Teachers and parents view mathematics as a 'typically male' subject and because of this, girls have lower confidence in their mathematical abilities, despite their high performance. A similar situation could also be seen in the tendency of boys to get lower grades and show lower self-efficacy in language learning (Watt, 2004).

### 3.1.4. Limits and future directions

As with any study, this research has both strengths and limitations. A strength is the large number of students included in this study and also the diversity of the educational system they represented, given that the students were taught in two different public schools, one traditional and the other from an alternative educational system.

There were some methodological limitations in this study. One limitation was the exclusive use of self-report questionnaires, which could increase the subjectivity of the data. A possible solution to counter a potential *bias* due to socially desirable responses would be to collect data from different sources (parents and teachers). Also, gender distribution was not equally represented in our sample, so future studies could better address this issue.

Future research could also investigate children's interest in the subject area under investigation, as this variable may influence their motivation to learn the subject and its association with the fulfillment of students' basic psychological needs. In addition, children's level of depression and anxiety should be taken into account in future studies as it may influence their satisfaction with life and school. Also, standardized test scores (e.g. grade point average) could be included to take into account the effects of motivation on school performance.

Furthermore, it would be relevant to include more educational systems, such as Step by Step, Montessori, etc., as Waldorf schools in Romania are state-funded and it would be interesting to see if there are differences between public and private educational systems. In addition, future studies could use multi-source designs to improve the identification of sources that may have a direct influence on basic psychological needs and types of motivation for learning (e.g. teachers, parents, peers).

## 3.2. [2]Study 2: Parenting style, teaching style and teacher enthusiasm: Can these variables predict students' psychological needs for autonomy, competence and relatedness?

The main purpose of this cross-sectional correlational study was to investigate the impact of parenting style, teaching style and teacher enthusiasm on students' needs for autonomy, competence and relatedness.

In this respect, we have put forward the following hypotheses:

*H1*: Autonomous parenting style positively predicts students' satisfaction with their basic psychological needs: (a) autonomy, (b) competence and (c) relatedness;

*H2*: Controlling parenting style negatively predicts students' satisfaction with their basic psychological needs: (a) autonomy, (b) competence and (c) relatedness;

*H3*: Autonomous teaching style (involvement, structure and autonomy) positively predicts students' satisfaction with their basic psychological needs: (a) autonomy, (b) competence and (c) relatedness;

*H4*: Teacher enthusiasm positively predicts students' satisfaction of their basic psychological needs: (a) autonomy, (b) competence and (c) relatedness.

### 3.2.1. Methodology

#### *3.2.1.1. Participants*

Participants in this research were 331 adolescents from middle and high schools, with a mean age of 14.87 (*SD* = 2.06).

[2] Mărincaș, A., Trif, S., & Opre, N. A. (2023). Parenting style, teaching style and teacher enthusiasm: Do these variables predict children's needs for autonomy, competence and relatedness? In *EDULEARN23 Proceedings*, 3378-3385, IATED.

#### *3.2.1.2. Tools*

***Basic Psychological Needs Questionnaire (BPNS):*** the questionnaire is based on the principles of Self-Determination Theory and measures students' basic psychological needs. The instrument has been translated by the authors from the standard version of the BPNS (Carreira, 2009) and has been adapted for the academic subject of the subject *Romanian Language and Literature*. For our sample, the Cronbach coefficient values were .88 for autonomy, .74 for competence and .74 for relatedness.

***The Parents as Social Context Questionnaire (PASCQ)*** comprises six dimensions, namely Warmth, Rejection, Structure, Chaos, Support for Autonomy and Coercion (Skinner et al., 1986). The positive dimensions of parenting style (autonomy-supportive) consist of warmth, structure and autonomy towards children, describing a style that expresses involvement, support, acceptance, appreciation, boundary setting, guidance, clear expectations and kindness. On the other hand, the negative dimension of parenting style (controlling) is made up of chaos, rejection and coercion towards children, with parents expressing hostility, irritability, criticism, lack of constant discipline and control, disapproval and conflict between parents and children. In the present study, Cronbach's Cronbach's coefficient values for mothers were .90 for the autonomy-supportive style and .88 for the controlling style. Cronbach's Cronbach's coefficient values for fathers were .92 for the autonomy-supportive style and .87 for the controlling style.

***The Teacher as Social Context Questionnaire (TASCQ)*** contains 24 items measuring three dimensions, each with 8 items (Wellborn et al., 1988). Cronbach's Alpha values for the dimension of teacher involvement ($\alpha = .87$) and structure giving ($\alpha = .79$) showed good levels of fidelity. For the autonomy supportiveness dimension, the initial Cronbach's alpha was .67, which did not meet the threshold of acceptability. After removing the score for the 12th item (e.g., "It seems like my teacher is always telling me what to do"), the Cronbach's alpha score reached an acceptable level ($\alpha = .75$).

***The Perceived Teacher Enthusiasm Questionnaire*** assesses teacher enthusiasm as a trait and was developed by Pintrich et al, 1993. For our sample, the Cronbach's alpha value was .83.

***The BASC-2 Anxiety Scale:*** BASC-2 is a multidimensional system used in the assessment of behavior and self-perception for children and young people between the ages of 2 and 25. The BASC-2 assesses a wide range of distinct dimensions that aid in the differential diagnosis of different categories of disorders, and also has scales with a higher degree of specialization (e.g., attention problems, depression, anxiety, hyperactivity). In our study, the Cronbach's Alpha value was .92.

***The Self-Efficacy Questionnaire of the MSLQ*** (Motivational Strategies for Learning Questionnaire- MSLQ) is a self-reported scale used to identify students' motivational orientations (Pintrich et al., 1993), where self-efficacy refers to a person's confidence to successfully cope with the tasks they face. In our study, the Cronbach's Alpha value was .94.

#### *3.2.1.3. Procedure*

The questionnaires were administered online at the beginning of the pandemic period, in March-April 2020, took about 20 minutes to complete, and the questions related to aspects of the *Romanian language and literature* classroom. Participants completed the questionnaires outside of school hours and were asked to answer questions about their perceptions of parents' style, teachers' style and enthusiasm, and teachers' satisfaction with basic psychological needs.

### 3.2.2. Results and data analysis

Data were analyzed with SPSS V26. To test the hypotheses of the study, we conducted multiple hierarchical regressions in three stages. In the first stage, we added anxiety and self-efficacy as control variables. In the second stage, we added parental style variables and in the last stage, we added teacher style variables. We conducted three hierarchical multiple

regressions, one for each type of psychological need, namely for autonomy, competence and relatedness.

There is a statistically significant positive correlation between parenting styles, both autonomy-supportive and controlling. Moreover, there are statistically significant negative correlations between the autonomy-supportive parenting style and the controlling style for both mothers and fathers. In addition, there are statistically significant positive correlations between dimensions of teachers' teaching styles and teachers' enthusiasm.

The first hierarchical multiple regression focused on students' need for autonomy satisfaction (Table 1; Model 1). Control variables explained 17.9% of the variance in autonomy ($F(2, 328) = 35.70$, $p < .001$). Parental variables additionally explained 1.6% of the variance in autonomy ($F(4, 324) = 1.61$, $p = .17$), and teacher variables additionally explained 31.1% of the variance ($F(4, 320) = 50.45$, $p < .001$). According to the first two hypotheses, the autonomy-supportive parenting style (H1a) and the controlling parenting style (H2a) should significantly predict students' autonomy need satisfaction. The results do not provide empirical support for these hypotheses. Autonomous-supportive teacher style (H3a) should also significantly predict student autonomy need satisfaction. This hypothesis received partial support, as only teacher involvement and perception of teacher autonomy significantly predicted student autonomy need satisfaction. Finally, we proposed that teacher enthusiasm would significantly predict student autonomy (H4a). However, this hypothesis did not receive empirical support.

The second hierarchical multiple regression focused on students' satisfaction of need for competence (Table 1; Model 2). The control variables explained 43.6% of the variance of competence ($F(2,328) = 126.60$, $p < .001$). Parental variables additionally explained 1.2% of the variance of competence ($F(4,324) = 1.75$, $p = .14$), and teacher variables additionally explained 8.4% of the variance ($F(4, 320) = 14.37$, $p < .001$). According to the first two hypotheses, the autonomous-supportive parenting style (H1b) and the controlling parenting

style (H2b) should significantly predict competence need satisfaction. There was no empirical support for H1b. The results provide partial support for hypoth hypothesis H2b, as mothers' controlling style significantly positively predicted students' competence need satisfaction, and fathers' controlling style significantly negatively predicted students' competence need satisfaction. Autonomous-supportive teacher style (H3b) and perception of teacher enthusiasm (H4b) should have predicted a significant positive impact on students' need for competence. These hypotheses did not receive empirical support.

The third hierarchical multiple regression focused on students' relationship need satisfaction (Table 1; Model 3). Control variables explained 8.6% of the variance of relatedness ($F(2, 328) = 15.51$, $p < .001$). Parental variables additionally explained 2.2% of the variance of relatedness ($F(4, 324) = 2.02$, $p = .09$), and teacher variables additionally explained 45.5% of the variance ($F(4, 320) = 83.59$, $p < .001$). According to the first two hypotheses, the autonomous-supportive parenting style (H1c) and the controlling parenting style (H2c) should significantly predict relationship need satisfaction. The results do not provide empirical support for these hypotheses. Autonomous-supportive teacher style (H3c) should predict a significant impact on relationship need satisfaction. This hypothesis received partial support as only the teacher involvement and teacher autonomy variables significantly predicted relatedness. Finally, we proposed that perceived teacher enthusiasm would significantly predict autonomy need satisfaction (H4c). This hypothesis received empirical support.

**Table 1**

*Multiple hierarchical regression results*

| | *Model 1* | | | | *Model 2* | | | | *Model 3* | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Variable* | *β* | *S* | *t* | $R^2$ | *β* | *SE* | *t* | $R^2$ | *β* | *SE* | *t* | $R^2$ |
| *Step 1* | | | | .179 | | | | .436 | | | | .086 |
| Constant | 1.80 | 0.32 | 5.56*** | | | | | | | | | |
| Self-efficacy | 0.05 | 0.006 | 8.15*** | | 0.06 | 0.004 | 15.54*** | | 0.02 | 0.005 | 4.25*** | |
| Anxiety | -0.01 | 0.007 | -0.917 | | -0.004 | 0.004 | -0.933 | | -0.02 | 0.006 | -2.89** | |
| *Step 2* | | | | .195 | | | | .448 | | | | .109 |
| Constant | 1.67 | 0.80 | 2.09* | | | | | | | | | |
| Self-efficacy | 0.05 | 0.006 | 7.54*** | | 0.06 | 0.004 | 15.05*** | | 0.02 | 0.006 | 3.59*** | |
| Anxiety | 0.00 | 0.007 | -0.05 | | -0.004 | 0.005 | -0.88 | | -0.01 | 0.007 | -1.85 | |
| PASCQM Supportive | 0.05 | 0.19 | 0.26 | | 0.12 | 0.12 | 1.02 | | 0.17 | 0.17 | 0.98 | |
| PASCQM Controller | -0.25 | 0.19 | -1.30 | | 0.23 | 0.12 | 1. | | -0.09 | 0.17 | -0.51 | |
| PASCQT Supportive | 0.08 | 0.18 | 0.45 | | -0.17 | 0.11 | -1.55 | | -0.03 | 0.16 | -0.17 | |
| PASCQT Controller | 0.07 | 0.19 | 0.38 | | -0.31 | 0.12 | -2.61** | | -.10 | 0.17 | -0.59 | |
| *Step 3* | | | | .506 | | | | .532 | | | | .564 |
| Constant | -0.80 | 0.67 | -1.21 | | | | | | | | | |
| Self-efficacy | 0.03 | 0.005 | 4.92*** | | 0.05 | 0.004 | 13.25*** | | 0.00 | 0.004 | -0.04 | |
| Anxiety | 0.01 | 0.006 | 1.20 | | -0.001 | 0.004 | -0.35 | | -0.01 | 0.005 | -1.49 | |
| PASCQM Supportive | -0.19 | 0.15 | -1.24 | | 0.01 | 0.11 | 0.11 | | -0.06 | 0.12 | -0.45 | |
| PASCQM Controller | -0.26 | 0.15 | -1.77 | | 0.22 | 0.11 | 2.00* | | -0.08 | 0.12 | -0.68 | |
| PASCQT Supportive | 0.16 | 0.14 | 1.09 | | -0.11 | 0.10 | -1.09 | | 0.06 | 0.11 | 0.55 | |
| PASCQT Controller | 0.29 | 0.15 | 1.89 | | -0.22 | 0.11 | -1.94+ | | 0.08 | 0.12 | 0.63 | |
| TASCQ Involve | 0.46 | 0.11 | 4.12*** | | 0.11 | 0.08 | 1.38 | | 0.23 | 0.089 | 2.58* | |
| TASCQ Structure | 0.03 | 0.12 | 0.22 | | 0.14 | 0.09 | 1.56 | | 0.09 | 0.10 | 0.89 | |
| TASCQ Autonomy | 0.61 | 0.13 | 4.60*** | | 0.15 | 0.10 | 1.55 | | 0.51 | 0.11 | 4.81*** | |
| Teacher Enthusiasm | 0.11 | 0.09 | 1.26 | | 0.08 | 0.07 | 1.25 | | 0.40 | 0.07 | 5.66*** | |

*Note*. + = marginally significant, * $p < .05$, ** $p < .01$, *** $p < .001$, N = 331, Model 1 = BPN Autonomy, Model 2 = BPN Competence, Model 3 - BPN Relationship, PASCQM = Parents as Social Context Questionnaire for Mothers, PASCQT = Parents as Social Context Questionnaire for Fathers, TASCQ = Teacher as Social Context Questionnaire.

We further explored gender differences on the three dimensions of basic psychological needs with a MANOVA. There were significant differences on autonomy ($F(1, 329) = 6.66$, $p = .01$, $\eta p^2 = .02$), with girls having higher levels of autonomy ($m = 4.10$, $SE = .07$) than boys ($m = 3.78$, $SE = .11$). There were significant differences on competence ($F(1, 329) = 6.16$, $p = .01$, $\eta p^2 = .02$), with girls having higher levels of competence ($m = 4.05$, $SE = .05$) than boys ($m = 3.81$, $SE = .08$). There were no significant differences on relatedness ($F(1, 329) = 0.078$, $p = .78$).

### 3.2.3. Discussion and conclusions

First, the results support the idea that parents have a major impact on how children can be motivated to learn at school. Thus, the mother's controlling style positively predicts the child's need for competence, while the father's controlling style negatively predicts the child's need for competence in *language and literacy* lessons. The results on the mother's controlling style can be explained by a possible link between parental psychological control and maladaptive perfectionism (Soenens et al., 2017). Given that Romania is a post-communist country, parents place a lot of emphasis on school performance, paying little attention to children's well-being (Lebedeva et al., 2018). Even if controlling behaviors are not helpful, they are often an expression of parents' love for their children (Ryan & Deci, 2017). Studies show that setting fairly strict limits negatively affects intrinsic motivation, but may stimulate introjective regulation. In traditional schools in Romania, both teachers and parents place a very high emphasis on performance, high grades and prizes in school competitions (Lebedeva et al., 2018). These strongly reinforce extrinsic motivation of the introjective regulation type, where ego gratification is very important and the focus is on gaining approval from others (Roth et al., 2009).

Second, our results showed that teacher involvement and teacher autonomy support positively predict the fulfillment of students' needs for autonomy and relatedness. The teacher's provision of structure does not predict any of the basic psychological needs in *EFL* lessons. Bao and Lam's (2008) study shows that the dimensions of teacher involvement and autonomy best predict the satisfaction of basic psychological needs (students' engagement in the classroom) and correlate with less depression and loneliness.

Third, teacher enthusiasm positively predicts the satisfaction of students' need for relatedness. These results are aligned with the literature which states that students feel more connected with an enthusiastic teacher because teacher enthusiasm involves humor, enjoyment in learning, and trying to make students excited about the subject being taught. Teacher enthusiasm engages students and stimulates them to interact during lessons, arouses their curiosity and cultivates their motivation for learning.

In this research, we considered the two controlled variables (self-efficacy and anxiety) because they have an important impact on the research results and we wanted to observe effects beyond these individual variables (Zhen, 2017). Self-efficacy positively predicts students' satisfaction with autonomy and competence, whereas anxiety level does not predict any of the satisfaction of basic psychological needs.

Given gender differences, girls had higher levels of autonomy and competence, and for the dimension of relatedness there were no statistically significant differences between girls and boys. Studies show that girls are more interested in learning native or foreign languages, while boys have lower levels of enjoyment (Carreira, 2011), engagement and curiosity towards these educational subjects (Oga-Baldwin et al., 2014).

### 3.2.4. Limits and future directions

A limitation has been the exclusive use of self-report questionnaires, which could increase the subjectivity of the data. A possible solution to counterbalance a potential bias due

to socially desirable responses would be a multi-source approach (i.e. questioning parents, teachers and peers). Also, the gender distribution was not evenly represented in our sample, so future studies could better address this issue.

Future studies would also be worth investigating children's interest in the investigated subject area, as this variable may influence their motivation to learn the subject and its association with the fulfillment of students' basic psychological needs. Children's depression level should also be considered in future studies as it may influence their satisfaction with school.

Furthermore, it would be relevant to include different types of schools in Cluj-Napoca, Romania, in order to check whether school size and type of school influence the results.

Abbreviations: SDT = Self-Determination Theory, BPN = Basic Psychological Needs, PASCQ = Parents as Social Context Questionnaire, TASCQ = Teacher as Social Context Questionnaire, MSLQ = Motivational Strategies for Learning Questionnaire

### 3.3. Study 3: The relationship between perceived teacher enthusiasm and students' motivation for learning: the mediating role of basic psychological needs[3]

The central aim of our study is to investigate the relationship between the perception of teacher enthusiasm and students' motivation for learning in the subject *Romanian language and literature*, and the role that the three basic psychological needs (autonomy, competence and relatedness) may play in this relationship. The research was carried out in a unique period for the global population, testing the relationship between the variables taking place 10 months after the COVID-19 pandemic (in February 2021) and the full move of the teaching of lessons to the online environment.

The central hypotheses were:

*H1*. Teacher enthusiasm has a positive relationship with intrinsic motivation (a) and identified regulation (b) and a negative relationship with introjective regulation (c) and external regulation (d).

*H2*. Teacher enthusiasm is positively related to the satisfaction of autonomy (a), competence (b) and relatedness (c) needs.

*H3*. Autonomy, competence, and relatedness explain the effect that teacher enthusiasm has on intrinsic motivation (a), identified regulation (b), introjective regulation (c), and external regulation (d).

[3] Mărincaș, A., Trif, S., Opre, N. A. (2025). The relationship between students' perception of teacher enthusiasm and learning motivation: The mediating role of basic psychological needs. *Cognition, Brain, Behavior. An Interdisciplinary Journal, 29*(1) (accepted manuscript)

### 3.3.1. Methodology

#### *3.3.1.1. Participants*

Mean age was 15.36 years (SD = 3.70), with 142 female and 51 male participants. 156 students live in urban areas and 37 students live in rural areas. Participants in this study are students from two public schools, one traditional and one alternative.

#### *3.3.1.2. Tools*

**Student-Perceived Teacher Enthusiasm Scale**

The questionnaire was designed to assess teachers' teaching enthusiasm. The Romanian version of the instrument used was translated by the authors from the original version by Frenzel et al. (2009b), the items being adapted for the subject *Romanian language and literature* taught online. The Cronbach's Alpha coefficient value for the questionnaire used in this study is .84.

**Basic Psychological Needs Questionnaire (*Basic Psychological Needs Scale)***

This questionnaire is based on the principles of Ryan and Deci's (2000) Self-Determination Theory and measures basic psychological needs (autonomy, competence and relatedness). For our sample, the Cronbach's alpha coefficient is .87 for autonomy, .74 for competence and .75 for relatedness.

**Academic *Self-Regulation* Questionnaire**

The Romanian version of the instrument used was translated by the authors from the original version of the SRQ-A by Ryan and Connell (1989). The value of Cronbach's Alpha Cronbach's coefficient (for measuring the internal consistency of the items) is .84 for extrinsic regulation, .87 for introjective regulation, .88 for identified regulation and .89 for intrinsic motivation.

**Self-Efficacy Scale**

The specific self-efficacy scale is part of *The* Motivated Strategies *for* Learning Questionnaire *(The Motivated Strategies for Learning Questionnaire-MSLQ*) developed by Pintrich and colleagues in 1993. In the present study we assessed specific self-efficacy, punctually for the subject *Romanian Language and Literature* taught online in the last 10 months of school. In the present study the Cronbach's Alpha coefficient value is .95.

**BASC-2 Depression and Anxiety Scales**

Scales for student depression and anxiety were extracted from the BASC-2, which is a multi-method, multidimensional system that facilitates the differentiated diagnosis of emotional and behavioral problems in children and youth ages 2-25 years (Kamphaus & Reynolds, 2015)

#### *3.3.1.3. Procedure*

Students in grades V-XII from both public schools participated in the study on a voluntary basis. Participants completed an online questionnaire outside school hours, which took about 25 minutes and was e-mailed to them. In the 11 months since the pandemic was declared in the country, 90% of classes were taught online, with the exception of the first 6 weeks at the start of the 2020-2021 school year, when students were allowed to attend school in person. The items in the scales used relate to students' perceptions of the enthusiasm with which the *Romanian language and literature* teacher taught online, the extent to which students' basic psychological needs were met, and the types of motivation for learning they experienced in the 11 months after the pandemic was declared across Romania.

### 3.3.2. Results and data analysis

Data collected were entered into SPSS V26. There were no missing data in our database. To test the hypotheses, we used the extension PROCESS- Model 4 (Hayes, 2012). This model allows testing parallel mediation. In this study, we used teacher enthusiasm as a predictor and the three basic psychological needs (autonomy, competence, and relatedness) as mediators. We ran four mediation models, one for each type of motivation (extrinsic regulation, introjective regulation, identified regulation and intrinsic motivation)

Student-perceived teacher enthusiasm correlated significantly positively with the three basic psychological needs (for autonomy, $r = .49$, $p < .001$; for competence, $r = .44$, $p < .001$; for relatedness, $r = .63$, $p < .001$). There were also significant correlations between teacher enthusiasm and introjective regulation ($r = .21$, $p = .003$), identified regulation ($r = .30$, $p < .001$), and intrinsic motivation ($r = .40$, $p < .001$). Basic psychological needs correlated significantly positively with all types of motivation except extrinsic motivation. Autonomy correlated significantly with introjective regulation ($r = .29$, $p < .001$), identified regulation ($r = .58$, $p < .001$), and intrinsic motivation ($r = .67$, $p < .001$). Competence correlated significantly with introjective regulation ($r = .22$, $p = .002$), identified regulation ($r = .48$, $p < .001$), and intrinsic motivation ($r = .53$, $p < .001$). Relatedness correlated significantly with introjective regulation ($r = .23$, $p = .001$), identified regulation ($r = .48$, $p < .001$), and intrinsic motivation ($r = .58$, $p < .001$). The results of the regression analysis can be found in Table 1.

According to the first hypothesis, perceived teacher enthusiasm would have a positive relationship with intrinsic motivation (a) and identified regulation (b) and a negative relationship with introjective regulation (c) and external regulation (d). We found empirical support for our second hypothesis, teacher enthusiasm does not significantly predict either type of motivation.

According to the second hypothesis, teacher enthusiasm would have a positive relationship with the fulfillment of autonomy (a) competence (b) and relatedness (c) needs. This hypothesis receives empirical support. Thus, enthusiasm significantly predicts levels of autonomy ($B$ = .61, $SE$ = .10, $p$ < .001, 95% $CI$ [.42; .81]), competence ($B$ = .33, $SE$ = .06, $p$ < .001, 95% $CI$ [.22; .45]) and relatedness ($B$ = .76, $SE$ = .08, $p$ < .001, 95% $CI$ [.61; .92]).

According to the third hypothesis, autonomy, competence, and relatedness explain the effect that teacher enthusiasm has on intrinsic motivation (a), identified regulation (b), introjective regulation (c), and external regulation (d). Although Baron and Kenny (1986) specify that a direct relationship between predictor and criterion is necessary to perform a mediation analysis, Hayes (2009) criticizes this approach and points out that an indirect effect can be identified in the absence of a significant direct effect. Thus, even though the first hypothesis was disproved, as the predictor (teacher enthusiasm) did not predict the criterion (student motivation), we proceeded to test for a possible mediating effect of the basic needs (autonomy, competence and relatedness).

**Table 1**

*Regression analysis results*

| *Variable* | *Autonomy* | *Competence* | *Contact* | *adjustment* | *Introjective adjustment* | *Adjustment identified* | *Intrinsic motivation* |
|---|---|---|---|---|---|---|---|
| *Intercept* | .71 (.48) | .89 (.30)** | .54 (.39) | 2.50 (.39)*** | 1.24 (.39)** | .77 (.33)* | -.10 (.32) |
| Self-efficacy | .26 (.06)*** | .38 (.04)*** | .08 (.05) | .04 (.06) | .04 (.06) | .09 (.05) | -.01 (.05) |
| Depression | -.04 (.02) ** | .01 (.01) | -.03 (.01)* | .005 (.01) | -.01 (.01) | -.01 (.01) | -.01 (.01) |
| Anxiety | .01 (.01) | -.01 (.01)* | .01 (.01) | .003 (.01) | .02 (.01)* | .01 (.01) | .005 (.01) |
| Entuziasm | .61 (.10) *** | .33 (.06)*** | .76 (.08)*** | .005 (.10) | .08 (.10) | -.10 (.08) | -.06 (.08) |
| Autonomy | | | | -.06 (.07) | .12 (.07) | .24 (.06)** | .31 (.06)*** |
| Competence | | | | -.04 (.10) | .05 (.10) | .15 (.08) | .23 (.08)** |
| Contact | | | | .03 (.08) | .03 (.08) | .16 (.07)* | .20 (.07)** |
| *N* | 193 | 193 | 193 | 193 | 193 | 193 | 193 |
| $R^2$ | .36 | .53 | .42 | .01 | .12 | .41 | .51 |
| *F* | 25.83*** | 53.12*** | 34.01*** | .37 | 3.45** | 18.11*** | 27.77*** |

*Notes*. * $p < .05$, ** $p < .01$, *** $p < .001$, *N* = number of participants, $R^2$ = coefficient of determination, *F* = F-test value

The indirect effects can be identified in Table 2. The results provide partial empirical support for this hypothesis, with the fulfillment of basic psychological needs explaining the direct relationship only between enthusiasm and intrinsic motivation, i.e., the identified adjustment. With respect to intrinsic motivation, all three mediators explain the direct relationship (for autonomy, *effect* = .19, *SE* = .04, 95% *CI* [.11; .28]; for competence, *effect* = .08, *SE* = .03, 95% *CI* [.02; .14]; for relatedness, *effect* = .15, *SE* = .05, 95% *CI* [.05; .26]). As for the effect of enthusiasm on the identified motivation, only autonomy (*effect* = .15, *SE* = .04, 95% *CI* [.07; .23]) and relatedness (*effect* = .12, *SE* = .06, 95% *CI* [.005; .24]) have an explanatory role.

**Table 2**

*Indirect effects*

| Cale | Indirect effect (*SE*) | 95% *CI* |
|---|---|---|
| Enthusiasm - Autonomy - Intrinsic motivation | .19 (.04) | .11; .28 |
| Enthusiasm - Competence - Intrinsic motivation | .08 (.03) | .02; .14 |
| Enthusiasm - Relating - Intrinsic motivation | .15 (.05) | .05; .26 |
| Enthusiasm - Autonomy - Identified regulation | .15 (.04) | .07; .23 |
| Enthusiasm - Competence - Regulation identified | .05 (.04) | -.02; .13 |
| Enthusiasm - Relating - Adjustment identified | .12 (.06) | .005; .24 |
| Enthusiasm - Autonomy - Introjective regulation | .07 (.04) | -.01; .15 |
| Enthusiasm - Competence - Introjective regulation | .02 (.03) | -.05; .08 |
| Enthusiasm - Relating - Introjective regulation | .02 (.07) | -.10; .17 |
| Enthusiasm - Autonomy - External regulation | -.04 (.04) | -.13; .04 |
| Enthusiasm - Competence - External regulation | -.01 (.03) | -.09; .05 |
| Enthusiasm - Relating - External adjustment | .03 (.07) | -.10; .17 |

*Note*. *SE* = standard error, 95% *CI* = confidence interval

### 3.3.3. Discussion and conclusions

The main outcome of the present research was the mediating effect of students' basic psychological needs (autonomy, competence and relatedness) on the relationship between teacher enthusiasm and intrinsic learning motivation in the subject *Romanian language and literature*.

Our research results show that there is no direct relationship between perceived teacher enthusiasm and student motivation. Autonomy, competence, and relatedness explain the effect of teacher enthusiasm on intrinsic motivation for learning, but only autonomy and relatedness explain the effect of enthusiasm on identified regulation. There is no mediating effect of basic psychological needs, no direct effect of perceived teacher enthusiasm on extrinsic regulation or introjective regulation.

According to the first hypothesis, perceptions of teacher enthusiasm predict the four types of motivation. The results do not provide support for this direct effect. Literature studies conducted under Ryan and Deci's (2020) *Self-Determination Theory* paradigm explain the effects on motivation through the initial satisfaction of basic psychological needs. A possible explanation for the lack of support for the first hypothesis could be that teacher enthusiasm has an effect on basic psychological needs (autonomy, competence, relatedness), and only when these are satisfied can we show an effect on students' learning motivation, the relationship is thus not direct. On the other hand, it is possible that the effect of teacher enthusiasm on pupils' learning motivation differs between different groups of pupils. For example, pupils who are proficient in *Romance language and literature* may benefit more from teacher enthusiasm than those who are not doing well enough. However, even students who are not passionate or proficient in a particular subject may come to experience positive emotions due to the enthusiasm that the teacher displays (Pekrun,

2006), which correlates with the fulfillment of basic psychological needs through the phenomenon of emotional contagion (Frenzel et al., 2018; Nalipay et al., 2024).

Second, we set out to analyze the relationship between perceptions of teacher enthusiasm and the satisfaction of basic psychological needs. The results revealed that teacher enthusiasm has a positive relationship with the satisfaction of students' needs for autonomy, competence, and relatedness (Patrick et al., 2000; Frenzel et al., 2019). Most studies in the field highlight this positive correlation, with the satisfaction of these needs underpinning learning behaviors during and after the completion of a lesson (Benlahcene et al., 2020; Hassan & Al-Jubari, 2016; Nunez & Leon, 2019). We can assume that an enthusiastic teacher relates authentically with his or her students, thus creating a beneficial learning and development context for them.

Third, autonomy, competence, and relatedness explain the effect that the perception of teacher enthusiasm has on intrinsic motivation and identified regulation. In the case of intrinsic motivation, all three mediators explain the direct relationship with the teacher's preperception of enthusiasm. The explanation for this result may be related to the fact that the pleasure with which the teacher teaches his subject may trigger in students the sincere pleasure of learning without a stake, just for the sake of studying.

In terms of the effect of enthusiasm on identified motivation, only autonomy and relatedness are explanatory. This result is also supported by other literature (Frommelt et al., 2021) which emphasizes that teacher enthusiasm predicts the emergence of more autonomous learning motivation (such as intrinsic motivation and identified adjustment), with relatedness mediated only by autonomy and relatedness. It is important to emphasize that identified regulation emphasizes the achievement of behaviors consonant with the individual's personal values (e.g. "I want to improve the country's legislation so that there is no discrimination for disadvantaged groups"), while competence is closely related to

academic performance, which may be based on a purely pragmatic interest (e.g. "I am learning to pass the entrance exam to the Faculty of Medicine"). From this point of view, the subject of *Romanian language and literature* may not so easily satisfy the need for competence in specific behaviors associated with personal values, except by exception (possibly, for example, in pupils who would like to become teachers of *Romanian language and literature*).

These results support that there is a strong relationship between the perception of teacher enthusiasm, basic psychological needs and students' intrinsic motivation to learn. Although students' achievement can also be good if they are externally motivated in a particular subject, the enthusiasm with which a teacher conducts his or her classes has a positive effect on students' intrinsic motivation for learning (Ryan & Moller, 2018).

The practical implications of the present research relate to the importance of the enthusiasm with which a teacher teaches in front of the class. Satisfaction of all three basic psychological needs correlates with intrinsic motivation for learning, which is extremely important for the emergence of well-being in the educational environment (Holzer et al., 2021). If students are not stimulated by the teacher's enthusiastic teaching, but their needs for autonomy and relatedness are met during class, they are able to exhibit an identified adjustment, which is also a type of autonomous motivation, based on congruence with personal values as the basis of learning (Ryan et al., 2022). The lack of correlation of teacher enthusiasm with extrinsic motivation and introjective regulation supports the idea that the more teachers train their enthusiasm with which they teach, the more students will experience more autonomous motivation (identified regulation), perhaps even enter the flow state by studying from the perspective of felt intrinsic motivation (Mehta & Vyas, 2022).

### 3.3.4. Limits and future directions

In the present research, a first limitation might be the relatively small sample size of participants. In future studies it would be worthwhile to include more students from more schools in order to be able to make comparisons between educational levels (middle versus high school) and to increase the statistical power of the results. Even the number of pupils per grade is very heterogeneous, not allowing us to compare data across grades (e.g. 8th grades to be analyzed in comparison with 9th grades).

The second limitation could be related to the fact that there is an imbalance in the gender of the study participants. It is possible that this difference is due to the fact that girls are more responsible for accomplishing tasks for school (Houtte, 2004) because of the opportunity cost (Workman & Heyder, 2020), in the research situation it is about completing the online questionnaire.

A third limitation may be given by the different high school level profiles of the schools included in the research. In Romania, high school classes have different profiles (e.g. human, real, artistic, technical, etc.) with different specializations (e.g. mathematics-informatics, philology, natural sciences, etc.). The traditional state high school included in the study has a real profile, the specializations being *natural sciences* and *mathematics-informatics*. The alternative state high school has a human profile, the only specialization being *philology*. If more high schools with various specializations had been included, it would have been possible to analyze the differences between high schools, their profiles and specializations.

The fourth limitation stems from differences in the intensity of motivation for the subject *Romanian language and literature*, this subject having a different number of hours per week depending on the specialization of the high school. We can deduce that students who chose to enter a high school with a human profile show a higher interest in subjects

from the philology (e.g. foreign languages) and social sciences (e.g. psychology, sociology, history etc.) specializations, having implicitly more hours per week of *Romanian language and literature* than those from the real or technical profiles. This idea is speculative and worth testing.

The fifth limitation could be related to the fact that some factors that may influence students' motivation to learn *Romanian language and literature* have not been controlled. These factors could be the students' interest in the subject, the similarity of the students' personality to that of the *Romanian Language and Literature* teacher, etc.

The sixth limitation could be the likelihood of measurement error due to completing all questionnaires online and outside school hours. If the study participants were at school, the likelihood of completing the questionnaire would have been higher than being at home and perhaps procrastinating completing it.

The final limitation would be that we did not measure teachers' personality traits in order to see whether teachers' enthusiasm varies according to them. Studies reveal that teachers with higher openness to new experiences and lower levels of extraversion adapted better during the pandemic than those with lower openness and higher levels of extraversion (Voss et al., 2023).

Future research directions may aim to compare the parameters studied during the COVID-19 pandemic with the results obtained after the end of the pandemic. In this way it could be observed whether online teaching improved or negatively affected teachers' enthusiasm for teaching, whether or not the typology of learning motivation among students changed, or whether the basic psychological needs of the participants were met differently.

## *3.4.* Study 4: The relationship between motivation for learning and performance in the *Romanian language and literature* baccalaureate exam[4]

### 3.4.1. Objectives and hypotheses

The aim of this correlational study was to investigate the relationship between motivation for learning and school performance in the *Romanian language and literature* test of the baccalaureate exam in July, 2022.

The central hypotheses were:

*H1*: Extrinsic motivation (a) and introjective regulation (b) will negatively predict the baccalaureate grade in the *Romanian language and literature* exam.

*H2*: The identified adjustment (a) and intrinsic motivation (b) will positively predict the baccalaureate grade in the *Romanian language and literature* exam.

### 3.4.2. Methodology

#### *3.4.2.1. Participants*

The participants in this research were 64 students from the 12th grade of a traditional high school in Cluj-Napoca (Cluj county), their average age was 18.25 years. Regarding the gender distribution, 43 were girls and 21 boys. Among the participants, 54 students live in urban areas and 10 students live in rural areas. The participants in this study are pupils in an elite school in Cluj county.

[4] Mărincaș, A., Trif, S., & Opre, N. A. (2025). Relationship between motivation for learning and performance in the Romanian language and literature baccalaureate. *Revista de Psihologie, 2* (accepted manuscript)

#### *3.4.2.2. Tools*

**Academic *Self-Regulation* Questionnaire**

The Romanian version of the instrument used was translated by the authors from the original version of the SRQ-A by Ryan and Connell (1989), the 32 items being adapted for the school subject *Romanian language and literature*. In the present study, the value of Cronbach's Alpha Cronbach's coefficient (for measuring the internal consistency of the items) is .80 for extrinsic motivation, .87 for introjective regulation, .88 for identified regulation and .90 for intrinsic motivation.

#### *3.4.2.3. Procedure*

The students of the 12th grades of the traditional high school participated voluntarily in the study, with the completion of the questionnaires taking place in the months of April-May 2022. Parental consent was obtained in advance from the parents of all students, and the school administration approved the conduct of the research. The anonymity and confidentiality of participants' data was guaranteed by the research team. Students completed an online questionnaire outside school hours, taking approximately 20 minutes to complete.

### 3.4.3. Results and data analysis

Data were analyzed with SPSS V26. We present the descriptive analysis of the data in Table 1, where we have included the means, standard deviations and correlation coefficients between the variables analyzed. In order to test the set hypotheses, we used a multiple regression analysis with four predictors (extrinsic motivation, introjective regulation, identified regulation and intrinsic motivation).

**Table 1**

*Descriptive statistics*

| | *M* | *SD* | *1* | *2* | *3* | *4* | *5* |
|---|---|---|---|---|---|---|---|
| 1. Extrinsic motivation | 2.05 | .57 | - | | | | |
| 2. Introjective regulation | 2.19 | .67 | .71** | - | | | |
| 3. Adjustment identified | 2.74 | .82 | .47** | .74** | - | | |
| 4. Intrinsic motivation | 2.15 | .82 | .34** | .63** | .79** | - | |
| 5. *Romanian language and literature* (2022) | 8.93 | .90 | -.12 | .20 | .19 | .21 | - |

*Note:* ** $p < .01$, *M* = mean, SD = standard deviation.

Multiple regression results can be analyzed in Table 2. The model with the four predictors explains 18.1% of the variance of the baccalaureate grade in the *Romanian language and literature* exam ($F(4, 59) = 3.26$, $p = .02$).

According to the first hypothesis, extrinsic motivation (1a) and introjective regulation (1b) negatively predict the baccalaureate grade in the *Romanian language and literature* exam. Research results partially support the hypothesis. Extrinsic motivation does indeed negatively predict the baccalaureate grade in the *Romanian language and literature* test (*B* = - .82, *SE* = .27, $p = .003$, 95% CI [-1.35; -.28]). Contrary to our hypothesis, introjective adjustment positively predicts the baccalaureate grade in the *Romanian language and literature* test (*B* = .72, *SE* = .30, $p = .02$, 95% CI [.13; 1.31]).

According to the second hypothesis, the identified regulation (2a) and intrinsic motivation (2b) positively predict the baccalaureate grade in the *Romanian language and literature* exam. The empirical results analyzed do not support this hypothesis.

**Table 2**

*Results of multiple regression analysis*

| *Variable* | *β* | *SE* | *t* | *95% CI* |
|---|---|---|---|---|
| Constant | 8.93 | .44 | 20.22*** | 8.04; 9/81 |
| Extrinsic motivation | -.82 | .27 | -3.05** | -1.35; -.28 |
| Introjective adjustment | .72 | .30 | 2.43* | .17; 1.31 |
| Adjustment identified | -.01 | .24 | -.06 | -.50; .47 |
| Intrinsic motivation | .06 | .21 | .29 | -.36; .49 |

*Note:* * $p < .05$, ** $p < .01$, *** $p < .001$; *β* = unstandardized regression coefficient
*SE* = standard error, *95% CI* = confidence interval

### 3.4.4. Discussion and conclusions

First of all, the results revealed that extrinsic motivation has a negative relationship with the baccalaureate grade in the *Romanian language and literature* exam, which is consistent with the results of other studies in the educational field (Liu et al., 2022).

Second, an interesting and opposite result to our hypothesis is that introjective regulation has a positive relationship with the baccalaureate grade in the *Romanian language and literature* exam. This aspect can be explained on the basis that the high school involved in the study is an elite high school in that city, there is a possibility that the focus may be more on obtaining diplomas, equating among other high schools with the results obtained, increasing students' self-esteem as a result of their achievements and encouraging them to participate in various competitions and olympiads during their high school years.

Thirdly, the hypothesis that identified regulation and intrinsic motivation are predictive of the baccalaureate grade in the *Romanian language and literature* exam did not obtain empirical support. A possible explanation for this result could be that students may be more easily stimulated by learning motivations controlled by external factors (parental pressure, scholarships received from the school, punishment given by teachers for poor results, etc.) or internally controlled factors (ego gratification, school prestige, etc.).

The results of the present research revealed that extrinsic motivation negatively predicts the baccalaureate grade in the *Romanian language and literature* exam, while introjective regulation positively predicts performance. A possible explanation for the positive correlation between introjective regulation and the grade obtained by the students could be the increased importance of feedback from teachers (and in some cases also from parents), who focus on reinforcing the students' ego.

These results support that there is a close relationship between the typology of motivation for learning and the school performance of students taking the baccalaureate exam. Although that school results can be very good, as students are externally motivated to learn (in this case the positive correlation being between performance and introjective regulation), studies show that enthusiasm and interest in learning are not present in such situations, and the learning process approach is not self-determined and guided by intrinsic motivation (Ryan & Moller, 2018 apud Elliot et al., 2018).

### 3.4.5. Boundaries and future directions

A first limitation is the small sample size of participants. In future studies, senior students from more than one high school should be included to increase the statistical power of the results and to detect the extent to which belonging to a prestigious high school explains some of the relationships between variables.

The second limit may be the profile of the high school included in the research. In Romania, high school classes have different profiles (e.g. real, human, technical, artistic, etc.) with different specializations (e.g. philology, natural sciences, mathematics-informatics, etc.). The high school involved in the study has four 12th grade classes with real profile, two with specialization *in natural sciences* and two with specialization *in mathematics-informatics*.

The third limitation is given by the fact that performance in the baccalaureate exam in the *Romanian language and literature* test is also influenced by other factors, which were not controlled in the present research. These factors could be intelligence level, perceived self-efficacy in the subject, students' level of anxiety and depression (Zhen et al., 2017), interest in the subject, importance of the grade for achieving the next career goal

(e.g., importance of the final average of the baccalaureate exam for admission to a particular college).

A fourth limitation could be the possibility of measurement error due to the fact that the questionnaires were completed online, outside school hours. The context and timing of completion was not controlled for and varied across participants.

Future research directions could focus on comparing the grades obtained by students from different classes, from high schools with more varied profiles in order to observe the relationship between motivation typology and academic performance of the participants. It could also study whether online teaching negatively affected or helped to improve school performance among domestic and international students, depending on different variables.

### 3.5. Study 5: The effects of the COVID-19 pandemic on the relationship between learning motivation, psychological needs, perceived teacher enthusiasm, self-efficacy and students' emotions

The central objective of the study is to investigate the changes that occurred among the studied concepts from the beginning of the pandemic (March-April 2020) to its peak (February 2021), specifically how the levels of the studied parameters fluctuated during the ten-month COVID-19 pandemic. During this period education was entirely online, except for the first three weeks of September 2020 when students physically went to school. The constructs compared in T1 and T2 refer to students' levels of depression and anxiety, subject-specific self-efficacy *(Romanian language and literature)*, students' perceptions of teacher enthusiasm for the subject, changes in basic psychological needs, motivation for learning, and positive and negative emotions, respectively.

A. The central hypotheses regarding the evolution of the concepts studied from T1 to T2 moments were:

*H1*. Depression (a) and anxiety (b) will increase from T1 to T2.

*H2*. Teacher enthusiasm (a) and student self-efficacy (b) will decrease significantly from T1 to T2.

*H3*. Autonomy (a), competence (b) and relatedness (c) will decrease significantly from T1 to T2.

*H4*. Extrinsic tuning (a) and introjection (b) will increase significantly from T1 to T2.

*H5*. Intrinsic motivation (a) and identified regulation (b) will decrease significantly from T1 to T2.

*H6*. Positive emotions (a) will decrease and negative emotions (b) will increase significantly from T1 to T2.

B. The hypotheses regarding the difference of the concepts studied (both in T1 and T2) in relation to the typology of high school (traditional versus alternative) are:

*H7*. Depression (a) and anxiety (b) will be significantly higher in traditional high school students in both T1 and T2.

*H8*. Teacher enthusiasm (a) and student self-efficacy (b) will be significantly higher in alternative high school students in both T1 and T2.

*H9*. Autonomy (a), competence (b), and relatedness (c) will be significantly higher in alternative high school students in both T1 and T2.

*H10*. Extrinsic tuning (a) and introjection (b) will be significantly higher in traditional high school students in both T1 and T2.

*H1*. Intrinsic motivation (a) and identified regulation (b) will be significantly higher in alternative high school students in both T1 and T2.

*H12*. Positive emotions (a) will be significantly higher and negative emotions significantly lower (b) in alternative high school students in both T1 and T2.

### 3.5.1. Methodology

#### *3.5.1.1. Participants*

The participants were 71 students in grades V-XII from two high schools (one traditional and one alternative - Waldorf) in Cluj-Napoca, jud. Cluj (Romania), their mean age was 15.3 years (*SD* = 1.83). Regarding the gender distribution, 60 were girls and 11 boys. Of the participants, 59 students live in urban areas and 12 students live in rural areas. The participants in this study are 61 students from a state high school and 10 students from the Waldorf alternative in Cluj-Napoca.

#### *3.5.1.2. Tools*

**BASC-2 Depression and Anxiety Scales**

Both questionnaires for student depression and anxiety were extracted from the BASC-2, which is a multidimensional and multi-method system that highlights emotional and behavioral problems in children and young people aged 2-25 years.

In the present study, the Cronbach's Alpha coefficient value is .72 in T1 and .78 in T2 for depression and .89 in T1 and .85 in T2 for anxiety.

**Self-Efficacy Questionnaire**

The self-efficacy questionnaire is part of *The* Motivated Strategies for Learning Questionnaire *(The Motivated Strategies for Learning Questionnaire-MSLQ*) developed by Pintrich et al. (1993). In the present research, we assessed students' self-efficacy in the school subject *Romanian language and literature* taught online. In the present study the value of Cronbach's Alpha coefficient is .95 in T1 and .94 in T2.

***Student-Perceived* Teacher Enthusiasm *Scale***

The Romanian version of the instrument used was translated by the authors from the original version of Frenzel et al. (2009), the items in the present study being adapted for the *Romanian language and literature* taught online. The Cronbach's Alpha coefficient value for the questionnaire used in this study is .78 in T1 and .82 in T2.

***Basic* Psychological Needs *Scale***

The present questionnaire measures the basal psychological needs (autonomy, competence and relatedness) of Ryan and Deci's (2000) *Self-Determination Theory.* The Cronbach's alpha coefficient value is .86 in T1 and .88 in T2 for autonomy, .73 in T1 and .69 in T2 for competence, and .74 in T1 and .70 in T2 for relatedness.

**Academic *Self-Regulation* Questionnaire**

The Romanian version of the questionnaire used was translated by the authors after Ryan and Connell (1989), the items being adapted for *Romanian language and literature* online classes. The Cronbach's Alpha coefficient value is .63 in T1 and .83 in T2 for extrinsic regulation, .77 in T1 and .83 in T2 for introjective regulation, .86 in T1 and .80 in T2 for identified regulation, and .89 in T1 and .86 in T2 for intrinsic motivation.

**Positive and negative affect scale (PANAS)**

This scale measures the respondent's positive and negative emotions. In the present study the value of Cronbach's Alpha coefficient for positive emotions is .88 in T1 and .87 in T2, and for negative emotions is .91 in T1 and .90 in T2.

#### *3.5.1.3. Procedure*

Students in grades V-XII from the two state high schools involved in the study completed the set of questionnaires in Q1 (April 2020) and Q2 (February 2021) 10 months after the COVID-19 pandemic. The questionnaires were e-mailed and completed outside school hours, the whole procedure took 25 minutes. All *Romanian language and literature* classes during the 10 school months referred to in the completed questionnaires were taught online, with pupils only being allowed to physically attend classes in September 2021.

### 3.5.2. Results and data analysis

Data were analyzed with SPSS V26. We present the descriptive analysis of the data in Table 1, where we have included means and standard deviations, and in Table 2 we have included the correlation coefficients between the variables of interest.

**Table 1**
*Descriptive statistics*

| | M | SD |
|---|---|---|
| 1.Self-efficacy T1 | 5.8 | 1.17 |
| 2.Self-efficacy T2 | 5.85 | 1.07 |
| 3.T1 depression | 9.7 | 4.61 |
| 4.T2 Depression | 10.86 | 5.39 |
| 5.Anxiety T1 | 17.37 | 8.09 |
| 6.Anxiety T2 | 17.68 | 7.37 |
| 7.Entuziasm T1 | 3.25 | 0.61 |
| 8.Entuziasm T2 | 3.09 | 0.65 |
| 9.Autonomy T1 | 4.1 | 1 |
| 10.Autonomy T2 | 3.89 | 1.06 |
| 11.T1 competence | 3.99 | 0.81 |
| 12.T2 competence | 4.07 | 0.7 |
| 13.Relation T1 | 3.35 | 0.88 |
| 14.T2 Relation | 3.16 | 0.83 |
| 15.Extrinsic T1 adjustment | 2.62 | 0.5 |
| 16.T2 extrinsic adjustment | 2.5 | 0.67 |
| 17.Introduction T1 | 2.76 | 0.58 |
| 18.Introduction T2 | 2.65 | 0.63 |
| 19.Adjustment identified T1 | 3.2 | 0.68 |
| 20.Adjustment identified T2 | 3.06 | 0.61 |
| 21.Intrinsic motivation T1 | 2.55 | 0.8 |
| 22.Intrinsic motivation T2 | 2.4 | 0.73 |
| 23.Positive emotions T1 | 3.06 | 0.8 |
| 24.Positive emotions T2 | 2.85 | 0.78 |
| 25.Negative emotions T1 | 1.82 | 0.82 |
| 26. Negative emotions T2 | 1.69 | 0.73 |

*Note*: *SD* = standard deviation, *M* = mean.

**Table 2**

*Correlations between variables of interest*

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.Self-efficacy T1 | - | | | | | | | | | | | | | | | |
| 2.Self-efficacy T2 | .59** | - | | | | | | | | | | | | | | |
| 3.T1 depression | -.26* | -.07 | - | | | | | | | | | | | | | |
| 4.T2 Depression | -.004 | .03 | .61** | - | | | | | | | | | | | | |
| 5.Anxiety T1 | -.22 | -.14 | .64** | .53** | - | | | | | | | | | | | |
| 6.Anxiety T2 | -.11 | -.13 | .39** | .64** | .73** | - | | | | | | | | | | |
| 7.Entuziasm T1 | -.002 | .15 | -.03 | -.13 | .05 | -.03 | - | | | | | | | | | |
| 8.Entuziasm T2 | -.07 | .23 | .01 | -.06 | .18 | .13 | .58** | - | | | | | | | | |
| 9.Autonomy T1 | .43** | .36** | -.09 | .01 | -.11 | -.11 | .32** | .17 | - | | | | | | | |
| 10.Autonomy T2 | .15 | .24* | -.13 | -.16 | -.06 | -.06 | .19 | .43** | .46** | - | | | | | | |
| 11.T1 competence | .76** | .56** | -.06 | .05 | -.21 | -.2 | .25* | .1 | .63** | .26* | - | | | | | |
| 12.T2 competence | .42** | .69** | -.1 | .001 | -.13 | -.14 | .21 | .48** | .39** | .42** | .57** | - | | | | |
| 13.Relation T1 | .20 | .14 | -.21 | -.08 | -.07 | -.05 | .59** | .45** | .51** | .24* | .38** | .18 | - | | | |
| 14.T2 Relation | .07 | .22 | -.17 | -.19 | .004 | .03 | .31** | .64** | .30* | .61** | .14 | .36** | .4** | - | | |
| 15.Extrinsic T1 adjustment | -.22 | -.07 | .18 | .05 | .25* | .12 | .11 | .17 | -.21 | -.08 | -.29* | -.18 | -.003 | .1 | - | |
| 16.T2 extrinsic adjustment | -.11 | -.16 | .13 | .03 | .2 | .05 | .23 | .18 | -.11 | -.12 | -.14 | -.23 | .05 | .01 | .51** | - |
| 17.Introduction T1 | -.03 | .01 | .16 | .08 | .32** | .17 | .17 | .23 | .19 | .1 | -.04 | -.03 | .22 | .27* | .48** | .51** |
| 18.Introduction T2 | -.06 | .04 | .11 | .07 | .24* | .1 | .22 | .45** | .1 | .21 | .02 | .1 | .18 | .29* | .35** | .71** |
| 19.Adjustment identified T1 | .24* | .26* | -.25* | -.09 | -.09 | -.07 | .46** | .30* | .64** | .28* | .39** | .23* | .57** | .29* | .07 | .12 |
| 20.Adjustment identified T2 | .16 | .31** | -.16 | -.13 | .02 | -.05 | .2 | .45** | .31** | .52** | .16 | .30* | .13 | .53** | .04 | .28* |
| 21.Intrinsic motivation T1 | .34** | .29* | -.07 | .07 | .12 | .11 | .42** | .31** | .71** | .39** | .50** | .23 | .63** | .36** | .04 | .09 |
| 22.Intrinsic motivation T2 | .29* | .28* | -.12 | -.0004 | .09 | .1 | .22 | .36** | .45** | .65** | .29* | .38** | .25* | .54** | .05 | .04 |
| 23.Positive emotions T1 | .36** | .31** | -.06 | .05 | .04 | .06 | .52** | .34** | .70** | .33** | .54** | .29* | .70** | .36** | -.04 | .11 |
| 24.Positive emotions T2 | .13 | .26* | -.02 | -.03 | .14 | .13 | .35** | .53** | .38** | .64** | .19 | .32** | .38** | .59** | .02 | .1 |
| 25.Negative emotions T1 | -.48** | -.30* | .34** | .25* | .51** | .43** | -.17 | -.12 | -.41** | -.22 | -.55** | -.46** | -.29* | -.15 | .37** | .28* |
| 26. Negative emotions T2 | -.15 | -.30* | .21 | .30* | .39** | .48** | -.2 | -.22 | -.33** | -.27* | -.33** | -.43** | -.21 | -.28* | .26* | .33** |

*Note.* * $p < .05$, ** $p < .01$, *** $p < .001$.

To test the evolution of the concepts from T1 to T2 we used t-tests (Table 3). The results indicate statistically significant differences in the level of depression ($t(70) = -.2.18$, $p = .03$), perception of teacher's enthusiasm ($t(70) = 2.34$, $p = .02$) and positive emotions ($t(70) = 2.55$, $p = .01$). There was a significant increase in the level of depression from T1 ($M = 9.70$, $SD = 4.61$) to T2 ($M = 10.86$, $SD = 5.39$). In terms of teacher enthusiasm (at T1 $M = 3.25$, $SD = .61$, at T2 $M = 3.09$, $SD = .66$) and positive emotions (at T1 $M = 3.06$, $SD = .80$, at T2 $M = 2.95$, $SD = .78$) a significant decrease was observed. Thus, hypotheses 1, 2 and 3 receive partial empirical support.

**Table 3**

*Results of t*

| *Variable* | *t* | *df* | *p* |
|---|---|---|---|
| Depression | -2.175 | 70 | .033 |
| Anxiety | -.454 | 70 | .651 |
| Self-efficacy | -.348 | 70 | .729 |
| Entuziasm | 2.336 | 70 | .022 |
| Autonomy | 1.685 | 70 | .097 |
| Competence | -.962 | 70 | .339 |
| Contact | 1.715 | 70 | .091 |
| Extrinsic regulation | 1.773 | 70 | .081 |
| Intro | 1.914 | 70 | .060 |
| Adjustment identified | 1.589 | 70 | .117 |
| Intrinsic motivation | 1.844 | 70 | .069 |
| Positive emotions | 2.549 | 70 | .013 |
| Negative emotions | 1.869 | 70 | .066 |

*Note*. *t* = t test; *df* = degrees of freedom.

Based on our previous findings, we decided to explore the extent to which changes in positive emotions and depression can be explained by changes in perceptions of teacher enthusiasm. To do this we used the SPSS MEMORE extension (Montoya & Hayes, 2017).

According to the results of our research, we hypothesized the following hypotheses regarding the relationship between the three variables (C):

*H13*. Decreased perceived teacher enthusiasm predicts increased levels of depression from T1 to T2.

*H14*. Decreased perceived teacher enthusiasm predicts decreased positive emotions from T1 to T2.

The difference in positive emotions is significantly predicted by the difference in teacher enthusiasm ($\beta$ = .05, *SE* = .13, $p < .001$), and the indirect effect is significant (*effect* = .09, 95% *CI* [.02; .16]). Thus, the decrease in positive emotions from T1 to T2 is explained by the decrease in teacher enthusiasm from T1 to T2. As for the difference in the level of depression, it is not predicted by the difference in the level of enthusiasm ($\beta$ = .35, *SE* = .92, *p* = .71), and the indirect effect is not significant (*effect* = .06, 95% *CI* [ -.20; .42]).

Because participants come from two different types of high schools (traditional versus alternative), we explored differences between institutions on several variables in both T1 and T2. Because the number of participants is disproportionate, we opted for non-parametric analyses using the Mann-Whitney test (Table 4). Data analysis disproved all hypotheses in Section B.

In terms of levels of self-efficacy, Waldorf high school students show statistically significantly lower levels in both T1 ($z$ = -3.60, $p$ < .001) and T2 ($z$ = -2.53, $p$ = .01). In terms of levels of depression and anxiety, Waldorf high school students show higher levels in T1 (for depression $z$ = -2.14, $p$ = .03; for anxiety $z$ = -1.99, $p$ = .047), but the difference is not significant at T2. In terms of basic psychological needs, Waldorf high school students show lower levels of competence needs at both T1 ($z$ = -2.12, $p$ = .02) and in T2 ($z$ = -2.59, $p$ = .01). In terms of motivation, Waldorf high schoolers show higher levels of extrinsic motivation in both T1 ($z$ = -2.41, $p$ = .02) and T2 ($z$ = -2.49, $p$ = .01). In addition, Waldorf high school students show a significantly higher level of introjective motivation only in T2 ($z$ = -2.14, $p$ = .03). Finally, in terms of emotions, there is a significant difference only in the level of negative affect in T1 ($z$ = -2.75, $p$ = .01), with Waldorf high school students showing a higher level of negative emotions.

**Table 4**

*Results of non-parametric comparisons*

| *Variable* | *Mann-Whitney U* | *Z* | *p* |
|---|---|---|---|
| Self-efficacy T1 | 88 | -3.597 | <.001 |
| T2 self-efficacy | 152 | -2.534 | 0.011 |
| T1 depression | 176 | -2.142 | 0.032 |
| T2 Depression | 224 | -1.344 | 0.179 |
| Anxiety T1 | 185 | -1.985 | 0.047 |
| T2 anxiety | 238 | -1.109 | 0.267 |
| Entuziasm T1 | 265.5 | -0.661 | 0.508 |
| Entuziasm T2 | 290 | -0.25 | 0.803 |
| Autonomy T1 | 288 | -0.286 | 0.775 |
| Autonomy T2 | 279.5 | -0.425 | 0.671 |
| Competence T1 | 177.5 | -2.12 | 0.034 |
| T2 competence | 149.5 | -2.587 | 0.01 |
| Reporting T1 | 282.5 | -0.375 | 0.708 |
| T2 Relation | 273.5 | -0.524 | 0.601 |
| Extrinsic adjustment T1 | 159.5 | -2.414 | 0.016 |
| T2 extrinsic adjustment | 154.5 | -2.492 | 0.013 |
| Introjective setting T1 | 209.5 | -1.583 | 0.113 |
| T2 introjective adjustment | 176 | -2.138 | 0.033 |
| Adjustment identified T1 | 274.5 | -0.506 | 0.613 |
| Adjustment identified T2 | 278.5 | -0.44 | 0.66 |
| Intrinsic motivation T1 | 262.5 | -0.704 | 0.481 |
| T2 intrinsic motivation | 279 | -0.431 | 0.667 |
| Positive emotions T1 | 260 | -0.744 | 0.457 |
| Positive emotions T2 | 303 | -0.033 | 0.974 |
| Negative emotions T1 | 139 | -2.752 | 0.006 |
| T2 negative emotions | 215.5 | -1.484 | 0.138 |

*Note*. *Z* = standardized Mann-Whitney test value U

### 3.5.3. Discussion and conclusions

We ran *t-tests* to analyze the fluctuation of all parameters from T1 to T2. Of all the 13 parameters compared, only for the perception of teacher enthusiasm, the level of depression and the level of positive emotions, respectively, were there significant differences from T1 to T2.

According to the first hypothesis, only the level of depression increased statistically significantly from Q1 to Q2. The justification for this result can be found in the fact that during the COVID-19 pandemic, social interactions decreased, many previously performed

activities were restricted, sedentary lifestyles increased, and students took refuge in the virtual world (Corpus et al., 2022).

According to the second hypothesis, only the *Romanian language and literature* teacher's level of enthusiasm decreased significantly from T1 to T2. This result is also supported by other studies which reveal that online teaching led to a decrease in the energy and engagement of teachers who conducted their classes online, their level of fatigue increased due to spending more time in front of screens, and the lack of face-to-face interaction with students decreased the interest with which teachers conducted their classes online (Voss et al., 2023).

Regarding the last hypothesis, only the level of positive emotions decreased significantly from T1 to T2. Studies conducted during the pandemic period have shown that positive emotions decreased and negative emotions increased among students (Liu et al., 2021), the main causes being decreased social interactions, students' more inactive lifestyles, the flexibility of a day's schedule and spending more time in front of screens (Parlak Sert & Başkale, 2023).

Given that significant differences were only observed for the three parameters from T1 to T2, we explored post-hoc whether decreases in teacher enthusiasm could explain the increases in levels of depression and decreases in positive emotions. The decrease in positive emotions is explained by the decrease in teacher enthusiasm. As for the difference in levels of depression, it is not explained by the difference in levels of teacher enthusiasm.

The correlation between decreasing perceptions of teacher enthusiasm and decreasing positive emotions during the pandemic can be explained by the major role that the teacher plays in front of the collective of students. Teacher enthusiasm stimulates students' enthusiasm for learning (Koca, 2022), inspires their curiosity, energizes the educational climate, and creates opportunities for basic psychological needs to be met

(Lazarides et al., 2018). Including long exposure time to online technologies correlates with poor health and heightened negative emotions (Zhhao & Zhou, 2020).

In terms of differences in self-efficacy levels between the schools participating in the study, the Waldorf high school students show lower levels in both T1 and T2. Possible explanations for the fact that *Waldorf* high school students do not feel as proficient in the subject could be supported by the idea of the incompatibility of the teacher's teaching style with the students' learning style, the students' low interest in the subject or the heterogeneity of the sample consisting mainly of high school students (8 out of 10 are high school students) whose motivation for the subject is more controlled (extrinsic) than autonomous as students progress through the high school years (Scherrer & Preckel, 2019). If the difference was only significant in T2 we could have supported the idea that online teaching is unsuitable for Waldorf pedagogy, but the difference is in both T1 and T2, which shows us that the causes of low levels of student self-efficacy are much more deep-seated.

In terms of levels of depression and anxiety, Waldorf high school students show higher levels in T1, with no significant differences in T2. With regard to this result we can only speculate a possible explanation, namely that the emotional profile of these students was more dysfunctional on both the depression and anxiety side, due to various individual causes.

In terms of basic psychological needs, Waldorf high school students show a lower level of proficiency needs in both T1 and T2. In a 2017 meta-analysis by Dahlin, it was precisely highlighted that 80% of Waldorf school students felt observed and supported by their teachers during their years of schooling. Students in Waldorf pedagogy are not encouraged to use digital technologies (Turos, 2022), which is why their proficiency level in the subject of *language and literature* taught online was lower than that of students in the traditional state system.

In terms of motivation, Waldorf high school students show higher levels of extrinsic motivation in both T1 and T2. This result disproves our hypothesis regarding the extrinsic motivation of alternative high school students. It is possible that the parents of these students exhibit a controlling parenting style, given that this stimulates external motivation for learning (Klootwijk et al., 2021). It is possible that the teacher's teaching techniques are more focused on stimulating extrinsic regulation by offering rewards and punishments, comparisons between students, etc. (Black & Deci, 2000 apud Montenegro, 2017), observing a possible effect of grading school performance in the form of grades written in the catalog- a strategy also addressed in Waldorf pedagogy, but in high school, just as in the traditional school system (Rawson, 2005). Most of the students in the alternative sample being high school students, their motivation decreases over the school years, with extrinsic motivation predominating (Gottfried et al., 2001).

Additionally, Waldorf high school students show higher levels of introjective motivation, but only in T2. Although Waldorf pedagogy emphasizes the use of pedagogical techniques by teachers to stimulate students' autonomous learning motivation (Montenegro, 2017), in the present study, it is evident that after the pandemic, students exhibited a more controlled form of motivation, with introjective motivation revealing learning that seeks ego gratification and school duties to gain approval from the teacher, parents, etc. (Ryan & Deci, 2020).

Finally, at the level of emotions, there is a significant difference only at the level of negative affect in T1, with the Waldorf high school having a higher level of negative emotions. Although no significant difference was found in the level of enthusiasm of the *ELL* teacher, it is possible that this difference between the samples is due to the teaching style of the teacher (Ahmadi et al., 2023), i.e., perhaps the teacher teaches in a more

controlling rather than autonomous way, gives students more homework, the amount of information is higher, the pace of teaching is faster or slower, etc.

### 3.5.4. Limits and future directions

In the present research, we also have a number of limitations. A first limitation could be the relatively small sample size. Although in T1 there were 363 students who completed the questionnaires and in T2 there were 193 students, only 71 students completed the questionnaires at both times in T1 and T2. In future studies it would be worth including students from more schools in order to be able to make comparisons between educational levels (middle school versus high school), comparisons between genders, social classes, etc.

A second limitation is that the students are only from two high schools, which also have different profiles (*natural sciences* and *mathematics-computing* versus *philology*). A broader and more representative analysis could have been achieved if more schools with more varied profiles and specializations had been included.

A third limitation could be caused by the full completion of the questionnaires online and in students' free time, a variable that can lead to measurement error, thus not being able to control whether the student is the one who completed the questionnaire received by e-mail. The likelihood of a larger number of pupils completing the questionnaires is increased if the task would be carried out at school, under supervision of a person, thus eliminating the possibility of procrastination. The data collected was self-reported by the pupils, with no alternative assessment of certain parameters, such as the opinion of a teacher or parent for certain variables.

The fourth limitation would be caused by the lack of assessment of teacher digitization, as it is known that teachers' abilities to use online technologies influence the

quality of lesson presentation and teachers' ability to keep students motivated on task (Gherheș et al., 2021).

### 3.6. Unpublished research results

In the 4th study conducted one year after the end of the COVID-19 pandemic in April-May 2022, 64 students from the traditional state high school in Cluj-Napoca participated. Data obtained from the 8 students from the alternative Waldorf state high school were not included in the study due to very small sample size. The significant results obtained from the comparison of the variables of the students from the traditional and the alternative Waldorf system are presented in the rows below.

We performed the Mann-Whitney U test to compare the scores between the two high schools in terms of the dimensions of the variables listed above. The participants showed significant differences for three variables, namely for the teacher's teaching style, the fulfillment of the students' need for autonomy and the baccalaureate exam grade obtained by the students in the subject *Romanian language and literature*.

With regard to the perception of the autonomy-supportive teaching style of the *Romanian language and literature* teacher, significant differences emerged on all three dimensions: teacher involvement ($Z$ = -2.83, $p$ = .005), providing structure ($Z$ = -2.19, $p$ = .028) and providing autonomy to students ($Z$ = -2.74, $p$ = .006). Significant differences were also identified in terms of students' basic psychological needs only in terms of the need for autonomy ($Z$ = -2.89, $p$ = .004). Finally, differences were observed in terms of the baccalaureate grade in the *Romanian language and literature* exam ($Z$ = -2.91, $p$ = .004).

For all three dimensions of perception of the teacher's autonomous-supportive teaching style and students' baseline need for autonomy, the mean ranks were higher for Waldorf high school students, indicating a higher level of this alternative education system.

In terms of the baccalaureate grade, the average ranks were higher for students in the traditional state high school, indicating a higher performance in the baccalaureate exam in the *Romanian language and literature* test.

A possible explanation regarding the higher level of autonomous-supportive teaching style of Waldorf teachers could be due to the fact that teaching-learning takes place in a motivating and perceived non-evaluative environment (Salchegger et al., 2021). At the same time, the specificity of Waldorf schools is that the pupil is stimulated to show interest and passion for everything around them (Steiner Federation, 2021 apud Sele, 2021), with education being inquiry-based (Salchegger et al., 2021).

Regarding the higher school performance of students in the traditional education system, it is known that Romanian education encourages competition and good results on national assessments, which is not much supported in Waldorf systems where experiential learning is prioritized over conceptual learning, the emphasis is quite low on standardized tests and assessments (Mitchell, 2005), and students are stimulated to use their imagination as a means of engaging in tasks (Leonard & Willis, 2008).

# 4. CHAPTER IV. CONCLUSIONS AND GENERAL DISCUSSION

The present research was guided by a general objective to *investigate the predictors of learning motivation and its effect on students' academic performance***.** The research paradigm assumed complex relationships, only some of which could be tested in this research approach. Our results partially confirm the literature data and our hypotheses from the five studies conducted.

The questionnaires for all investigated parameters were administered at three different points in time, namely in T1- at the beginning of the pandemic in April 2020, in T2- 10 months after the beginning of the pandemic (teaching being online only until that time), and in T3- one year after the end of the pandemic in May 2022. Only in Q3 were also collected the marks obtained by students in the *Romanian Language and Literature* baccalaureate exam, the mark in such an exam being a standardized parameter and thus avoiding the subjectivity of the evaluation process specific to each education system.

In the first study we set out to analyze *the relationship between basic psychological needs and the typology of motivation for learning, respectively the relationship between students' self-efficacy and the typology of motivation for learning***.** The results of the first study consisted in the finding that 53% of the variance of intrinsic motivation for learning is predicted by the satisfaction of basic psychological needs (autonomy, competence and relatedness), and that self-efficacy correlates positively with intrinsic motivation and negatively with extrinsic motivation.

In the second study conducted only on the sample of traditional state school students, we aimed to investigate *the correlation between the perception of teaching style and teacher enthusiasm, respectively parenting style with the three basic psychological needs of students (autonomy, competence and relatedness). The* results revealed that teacher involvement and autonomy-supportive style predict the satisfaction of students'

needs for autonomy and relatedness. An interesting result was the correlation between parenting style and the satisfaction of these basic needs. The mother's controlling parenting style positively correlates with the child's need for competence, but the father's controlling style negatively correlates with the child's need for competence. The obtained result reiterates what is supported by other literature (Lebedeva et al., 2018; Roth et al., 2009; Ryan & Deci, 2017; Soenens et al., 2018). In our study, teacher enthusiasm correlated positively only with students' need for relatedness, this variable is considered an important factor that provides energy to classroom dynamics due to the positive effect of "emotional contagion" on students' motivation (Hsee et al., 1990).

In the third study we investigated the *impact of teacher enthusiasm on students' motivation for learning and the role that autonomy, competence and relatedness may play in this relationship* during the period when classes were conducted entirely online. The questionnaires were administered 10 months after the outbreak of the COVID-19 pandemic, an atypical period for education given that all classes were online only. The results show that there is no direct relationship between teacher enthusiasm and student motivation. Autonomy, competence, and relatedness explain the effect that teacher enthusiasm has on intrinsic motivation for learning, but only autonomy and relatedness explain the effect of enthusiasm on the identified regulation. No mediating effect of basic psychological needs and no direct effect of teacher enthusiasm on extrinsic motivation and introjective regulation were identified.

The fourth study analyzed the *relationship between motivation for learning and the grade obtained by 12th grade students in the Romanian language and literature exam*. Data were collected one year after the effects of the pandemic on the population had diminished, more precisely in April-May 2022. The results show that extrinsic motivation negatively predicts the marks obtained in the baccalaureate examination in the *Romanian language*

*and literature* exam. In addition, introjective tuning positively predicts students' grades obtained in this national assessment test. The hypothesis that the identified regulation and intrinsic motivation are predictive for the baccalaureate grade in the *Romanian Language and Literature* exam did not receive empirical support.

In the last study we aimed to investigate *the evolution of the variables involved in the educational approach from Q1 (March-April 2020) to Q2 (February 2021),* specifically how the values of the analyzed parameters fluctuated after ten months of the COVID-19 pandemic. During this period, the teaching process was entirely online, except for the first three weeks of September 2020 when students physically attended school. The concepts analyzed are those from previous studies, and refer to the characteristics of the students involved in the research, namely their perceptions of the enthusiasm with which their *Romanian Language and Literature* teacher taught the subject online. The results revealed that there were statistically significant differences only in the levels of depression, positive emotions and teacher enthusiasm. The level of students' depression had a significant increase and positive emotions and teacher enthusiasm had a significant decrease. The results from the second stage of statistical analysis showed that the difference in the level of positive emotions is significantly predicted by the difference in the level of teacher's enthusiasm, and the indirect effect is significant

Since the participants come from two state schools with different profiles (traditional and alternative), *we explored the differences between the students of the two systems on several variables in both T1 (pre-pandemic) and T2 (post-pandemic).* In terms of self-efficacy levels, Waldorf students show lower levels in both T1 and T2. In terms of depression and anxiety levels, Waldorf students show higher levels in T1, but the difference is not significant in T2. In terms of basic psychological needs, Waldorf pupils show lower levels of competence needs in both T1 and T2. In terms of motivation, Waldorf pupils show

higher levels of extrinsic motivation in both T1 and T2. In addition, Waldorf students show higher levels of introjective motivation only in Q2. Finally, in terms of emotions, there is a significant difference only in the level of negative affect in Q1, with Waldorf students showing higher levels of negative emotions.

### 4.1. Theoretical implications

A study in the thesis aimed to reveal that the perception of teacher enthusiasm correlates positively only with students' need for relatedness. From the teacher's autonomy-supportive teaching style, only teacher autonomy and involvement positively predict students' need for autonomy and relatedness. Thus, we observe that a teacher whose enthusiasm is perceived by the students as high can modify student autonomy and relatedness, but not competence. Also in this study an interesting result was obtained for the sample of pupils in grades V-XII, namely that the mother's controlling parenting style correlates positively with the child's need for competence, but the father's controlling parenting style correlates negatively with the child's need for competence.

Research has provided further evidence that female students have higher levels of self-efficacy than males in the subject of mother tongue (*Romanian language and literature*), a result supported by other research in the field (Wightman, 2020; Workman & Heyder, 2020).

Also, the thesis had a touch of particularity by including in the studies a sample of students from the Waldorf High School in Cluj-Napoca (even if it was not numerous), these studies being the only ones, according to our research, conducted under the paradigm of *Self-determination Theory* and with students from the Waldorf system during the COVID-19 pandemic in Romania.

The research conducted at the end of the COVID-19 pandemic revealed that autonomy, competence and relatedness needs explain the effect that teacher enthusiasm has on intrinsic motivation for learning, but only autonomy and relatedness explain the effect of enthusiasm on the identified regulation, with no direct relationship between teacher enthusiasm and student motivation.

The study carried out one year after the end of the COVID-19 pandemic showed that extrinsic motivation negatively predicts the grades obtained in the *Romanian language and literature* baccalaureate exam. In addition, introjective tuning positively predicted students' grades obtained in the baccalaureate exam in the same subject. This can be explained by the fact that a student tends to be rather extrinsically or intrinsically motivated, and less often having both types of motivation at a very high level.

In the final study, we obtained an interesting result by finding that 10 months after the onset of the COVID-19 pandemic and the full deployment of online teaching, the level of student depression showed a significant increase, with student positive emotions and teacher enthusiasm showing a significant decrease. The decrease in positive emotions from T1 (pre-pandemic) to T2 (post-pandemic) is explained by the decrease in teacher enthusiasm from T1 to T2. As for the difference in depression, it is not predicted by the difference in teacher enthusiasm.

Concerning the comparative study on the differences between the sample of mainstream and alternative school students, we identified different results from the studies conducted so far. The levels of depression, anxiety and negative emotions were higher among Waldorf students in T1 and introjective regulation was higher in T2. At the same time, the values for self-efficacy in *Romanian Language* and need for competence were significantly lower and the level of extrinsic regulation higher among Waldorf students in

both T1 and T2. However, these results need to be retested on a larger sample in the alternative school system before they can be generalized.

### 4.2. Methodological implications

The particularity of our research is the pandemic context that can no longer be replicated, given that our studies were carried out in this anti-epic context in which the entire education system has moved its activity online. This research can also be an important one for analyzing other teaching methods that imply exclusively online teaching such as *homeschooling*. The methodological implications go in this direction, since never before has there been this context in which traditional school students have participated in classes conducted entirely online for such a long period of time.

### 4.3. Practical implications

We appreciate that several practical implications can be identified from the results of our studies. One of the findings of our research was that satisfaction of basic psychological needs positively predicts the emergence of intrinsic motivation for learning. This result confirms studies in the literature (Ryan & Deci, 2017), with the novelty of our research being that the relationship holds even when learning takes place online.

Teacher enthusiasm explains students' intrinsic motivation through mediators related to their needs for autonomy, competence and relatedness. The result obtained is interesting and can lead us to different speculative explanations. The fact that there is no direct relationship between teacher enthusiasm and intrinsic motivation may be evidence that intrinsic motivation is a completely internal process, not depending on external factors.

In terms of identified regulation, only the need for student autonomy and relatedness explain the effect of enthusiasm on identified regulation. It is important to emphasize that the identified regulation emphasizes the achievement of behaviors consonant with the individual's personal values (Ryan et al., 2022), and the need for

competence is closely related to the creation of a framework on the facilitation of the achievement of academic performance, which may be based on a purely pragmatic interest. From this point of view, it is possible that the subject subject of *Romanian language and literature* may not so easily satisfy the need for competence for specific behaviors associated with personal values, except by exception (possibly, for example, in students who would like to become teachers of *Romanian language and literature*).

The practical implications for the Waldorf alternative education system would be to check the manipulation of certain variables in order to test the theories that define this system. Given that some of the assumptions with which we started the research did not hold true, we would recommend the implementation of a system to monitor the effects that the particular elements of this pedagogy may have on the stimulation of students' intrinsic motivation for learning. Simply creating the context for stimulating internal motivation for learning does not imply that the strategy will be effective. If we do not test, we do not know.

The purpose of the comparative study of traditional and alternative education systems is not to hierarchize these two systems, but to identify the strengths of each and to highlight the impact they can have on the educational process. For this reason, if in the traditional system the need for competence is more strongly developed, and in the alternative system the need for autonomy, then in teacher training programs can be developed which can be used to capitalize on those needs of students that the system has not been able to develop to their full potential in the act of teaching and learning.

The results of our research brought only some preliminary conclusions suggesting that the mother's controlling parenting style correlates positively with the child's need for competence, but the father's controlling parenting style correlates negatively with the

child's need for competence. In the future, the role of parents in the educational approach to meeting the child's competence need can be further explored.

In terms of gender differences, these have been found in both mainstream and alternative schooling, with girls having more developed language proficiency than boys (Dionne et al., 2003 apud Wightman, 2020). This result has also been highlighted in other research making gender comparisons (Workman & Heyder, 2020).

### 4.4. Limits and future research directions

An important limitation of the research is that the initial samples were greatly reduced during the course of the research (from T1 to T2 and from T2 to T3). This was due to experimental attrition which is certainly higher in the online research situation. Beyond this context, it certainly contributed to the fact that the students were overloaded with any task involving the use of the online environment, as they were dissatisfied because the whole learning process was conducted for a long period of time in this form.

A further limitation of this research is that the samples were not drawn according to a baseline T0 level of performance in the subject *Romanian language and literature*. For the future, such a selection would certainly ensure greater rigor. However, in the present research, we decided to abandon stratified sampling and to prioritize other important variables, namely the *pandemic status*, which did not allow us to postpone the application of the questionnaires, nor did it allow us to make a highly rigorous selection of schools to take part in the research, given the restricted access.

The studies were carried out only for the subject *Romanian language and literature*, which is why in future research it would be worth evaluating another subject from the real spectrum (e.g. mathematics) in order to observe differences according to the nature of the information content, especially since girls are more likely to learn foreign languages than

boys (Wightman, 2020), and it would be worth introducing real subjects to obtain more varied results.

The questionnaires were completed by students online, outside school hours, and their participation was voluntary and unpaid. It is well known that engagement is not so strong when it comes to online completion of an optional task, as students are overloaded with online tasks.

All data collected from students involved student self-perception/self-report instruments. An approach involving other actors involved in the educational process, such as classroom teachers, pupils' parents, the class leader, would reduce subjectivity and reduce errors in assessment.

Assessment is not a pleasant task for students and from this point of view we can say that students who are constantly developing the need for autonomy (Waldorf students), in the context that filling in questionnaires is voluntary and not pleasant, may decide in a higher percentage to give up the task than those who are used to doing the tasks given to them even if they do not give them enough pleasure (students in a high-performing high school in the traditional education system).

The differences between pupils in the two systems in relation to the *Romanian language and literature* grade can also be partly explained by the fact that pupils in the traditional system are consistently prepared and assessed in the same way as the national assessment is designed. In contrast, pupils in the alternative system have different methods of preparation and assessment, which clearly puts them at a disadvantage in a standardized examination.

As future directions, we recommend exploring students' motivation in relation to their baccalaureate grade. It would be interesting to combine standardized questionnaire testing to measure types of motivation with a qualitative research approach in which

students explain what motivates them to learn and why. Another line of research is concerned with the impact that family values about education are reflected in the formation of different types of student motivation. For such a study, we would also need to collect data from students' family members.

In conclusion, in future studies it is recommended to conduct research with a methodology that allows for a higher degree of generalizability. In this regard, it would definitely help to collect data from more schools in the education system in order to lose the effect of this variable. It is strongly recommended to homogenize the samples with respect to academic performance, so that in the future the selection of schools and high schools should be adjusted according to the similarity in the performance of pupils, including in national tests.

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