THE IMPACT OF SCAFFOLDING, SOCIAL MOTIVATION AND PEER FEEDBACK ON PRIMARY SCHOOL STUDENTS' ACADEMIC MOTIVATION STIMULATION

Maricica Hotea¹, Emanuel Sebastian Turda²

¹Teacher of Preschool Education, Kindergarten with Extended Program No. 4, Baia Mare, Romania
²Associate Professor Doctor, Faculty of Psychology and Educational Sciences, Babeș-Bolyai University, Cluj-Napoca, Romania

Abstract:
We live in an increasingly accelerated world. The society we belong to has come to value other aspects of an individual's development. The phenomenon of learning is at the center of the concerns of all teachers, especially because every teacher wants his students not only to say that they are learning but to be dedicated and involved wholeheartedly in this process. This can be a reality, especially when we talk about a strong motivation to learn. Motivation has a very important role in the learning process, we can even say that it is the key to success in education. Our trust in group members exerted a profound influence on our motivation: successful group functioning requires that we be motivated to interact and engage with those around us. Feedback is essential to improving performance and is increasingly well understood, but the fact that it is so absent in classrooms should remain an important research topic. This study aimed to develop an educational intervention program based on scaffolding to stimulate academic motivation among third-grade students. The results demonstrated the fact that social motivation, respectively the peer feedback significantly contribute to the stimulation of students' motivation in the learning process.

Keywords: academic motivation, educational intervention program, peer feedback, scaffolding, social motivation

¹Correspondence: email hoteamaricica80@gmail.com; emanuel.turda@ubbcluj.ro
Motivation affects daily human activity, however, if it should be studied as a phenomenon, it would be quite difficult to research (Barbu, 2012). Along with other behaviors in the analysis of the motivational structure, the cognitive component that helps the need to change into concrete reasons is also involved. Through the development of cognitive processes, human motivation is deeply modified, this phenomenon is called "cognitive elaboration of needs"; cognitive functioning is triggered by needs, and this makes a person think (Ungureanu, 2010).

Motivation is one of the most important prerequisites of learning. Enormous sums of money are invested for the construction of schools, for their equipment, and for the payment of the teaching staff. But all this becomes practically ineffective and valueless if pupils are not motivated to learn. We often ask ourselves: "What makes a pupil invest effort and time in studying, and another focus on other concerns?", "Why does a pupil initiate certain activities, persevere and succeed in completing them, while others he abandons halfway through or does not even pay a minimum of attention to?" (Mih, 2010, p. 60).

Muste (2019, pp. 285-286), starting from the conceptual delimitations found in the literature on the concept of motivation, outlined “the following defining aspects:

- the motivational phenomenon has proved to be a determining factor in the development of the individual’s activity and in the harmonious development of the human being;
- motivation can be considered a means of directing personality development between previously determined goals;
- motivation is the starting point in all specifically human actions;
- the need to belong to a group is signaled by the determining motivations of a person;
- poor physical or mental condition can cause malfunctions in the motivational support of actions which are already started or can lead to giving up, to involvement in new activities;
- motivation has a decisive role in the formation of defining attributes for the human personality, consistent with one’s own interests;
- the motivation is showing a development in the direction of accepting the reasons in accordance with the norms of the society of which it is a part, as well as in the sense of rejecting those reasons considered unacceptable;
- the effectiveness and impact of the motivational phenomenon is explained by the existence of two components:
  - one with a role in the energetic support of the actual actions, and another with a role in guiding the entire activity;
  - the forms that motivation takes over time are among the most diverse”.

Popenici & Fartușnic (2009), in a school context, define motivation as the process that leads, guides, and maintains a certain behavior desirable for the status of a student: participation in classes, involvement in learning activities in the classroom and at home, successfully solving tasks, etc.
Our trust in the members of the group to which we belong exerts a profound influence on our motivation. Successful group functioning requires that we be motivated to interact and engage with those around us. Additionally, to understand students’ social behavior, it is essential to analyze both social cognition and social motivation (Chevallier et al., 2012; Tomasello et al., 2005).

Scaffolding in the learning process is related to the different ways of supporting the student in activities that he cannot do independently (Van de Pol et al., 2010; Wood et al., 1976).

2. Literature Review

The use of social reinforcements (attention, praise, approval, recognition of personal value) by the teacher in the school environment to increase the frequency of desirable behaviors, increases the chances that they will become stable in the extracurricular environment, where the student often encounters similar social reinforcements (Drămnescu, 2010).

The place each student occupies in the group of belonging is of great importance for social development and for its impact on well-being and school learning. Peers can be agents of control, intervening in the teacher’s absence, to sanction a peer’s deviant behavior or to reinforce the appropriateness of a behavior. Through the peer group, the student obtains validation of attitudes, interests, abilities, or personal worth (Pletnoiv, 2015).

Peer relationships have a strong and positive impact on achievement in school (Krnjaji, 2002; Roseth et al., 2008) while also providing a source of companionship and entertainment, help with problem-solving, personal validation, and emotional support, and a basis for children’s identity development throughout childhood and adolescence (Wentzel, 2017). Positive peer relationships will enable children to have increased levels of emotional well-being, self-efficacy, social competence, and academic achievement (Rubin et al., 2008; Wentzel, 2017).

From the constructivist perspective, the teacher is no longer perceived as the only source of knowledge, because students can learn from interaction with their peers and/or from other sources. Social constructivism is based on two fundamental concepts:

1) *scaffolding*, which is the sociocultural field created by the adult (educator, teacher, etc.) specifically to promote the student’s cognitive development, stimulated through various interactions, verbal guidance, behavior models, etc.;

2) *the zone of proximal development*, which defines the pedagogical space located between the current level of development of the student and the potential level that can be acquired in the context of sociocultural relations with the teacher and/or other students. In other words, the zone of proximal development of the field that the student can achieve through learning, helped by the teacher or another more competent student.
The aim of scaffolding is to provide support, strategies, models, types of questions, restructuring for the student to be able to build his own knowledge. According to Van de Pol and colleagues (2010 as cited in Botezatu, 2019, p.35), scaffolding fulfills "the following objectives in the formative assessment process:

- keeping students in the desired direction, helping them to achieve the educational objective;
- providing the necessary explanations for carrying out the learning activities;
- adjusting the didactic tasks that the student is not yet able to do on his own;
- stimulating interest in carrying out the task and complying with the assessment requirements;
- facilitating the achievement of performance by providing constant feedback”.

Scaffolding encourages collaboration, respect for one’s own and others’ ideas, and the growing ability to construct meaning from prior experience (Lee, 2003), as well as greater autonomy in determining learning behaviors (Chang & Ho, 2009). As a result of success in these incremental challenges, motivation, confidence, and satisfaction are all enhanced (Brownstein, 2001).

Viewed as an exchange of roles between sender and receiver, feedback is a process that occurs at the level of different systems, whereby the strategy used to achieve an outcome is analyzed in order to improve the process or the intended outcome. As an element of the communication process, it does not respect hierarchy, being essential for both vertical and horizontal communication. It has the role of supporting learning and motivating students by helping them become more self-confident. Polymorphically, it has a formative quality when it stimulates the student to improve his learning outcomes. The act of communication is not fully realized if it is not produced with a constructive effect.

In an educational context, feedback can be seen as a communication act, a social process, and an artefact of the classroom. It is not only construct or content but also relation (Yang & Carless, 2013). Beyond mediating specific curricular messages, feedback develops students’ personalities during classroom interactions.

The relational side of the concept, as well as the psychological implications, show that feedback transcends knowledge and becomes a tool for probing one’s own person, with formative values in the perception of student identity and positioning in relation to oneself and others (Dann, 2019).

Peer feedback refers to the comments and suggestions that students receive from each other in a class. In other words, peer feedback is also known as peer response, peer critique, peer review, peer review, and peer assessment. equal. It is a collaborative activity where students are encouraged to read, converse, and offer thoughts and opinions about other students' work to scaffold their learning (Kuyyogsuy, 2019). Peer feedback is provided by learners of equal status and can be seen as both a form of formative assessment (Topping, 1998) and a form of collaborative learning (Van Gennip et al., 2010).

Regarding the benefits of peer feedback, Cheng and Warren (2000) suggest that students who participate in this type of learning improve their educational relationships.
and social skills, experience deeper learning, perform well on assessments, learn independently, they become more and more reflective and are less dependent on the teacher. Most importantly, students become more critical learners as a result of this type of feedback.

The aim of this research is to develop an educational intervention program based on scaffolding to stimulate academic motivation among third-grade students.

Within this research, we intend to achieve the following objectives:
1) Evaluation and identification of the level of social motivation, respectively of the peer feedback of the participants induced in the study.
2) Implementation of an educational intervention program based on scaffolding for the development of academic motivation in third-grade grade students.
3) Establishing the degree of efficiency of the program implemented in order to develop the academic motivation of the students included in the research.

The hypothesis from which we started this research is the following: Implementation of the educational intervention program "Together we make a good team!" will significantly contribute to the development of the academic motivation of 3rd grade students.

3. Material and Methods

3.1 Participants
The participants of this research were 50 students of the third grade aged between 9 and 11 years (N=50), of which 20 students of the "Liceul Tehnologic" from Ocna Șugatag and 30 students of "Regele Ferdinand" Pedagogical High School in Sighetu-Marmației, Maramureș county. Based on the interpretation of the answers provided by the participants, they were divided into two groups: the control group being represented by the students of the "Regele Ferdinand" Pedagogical High School (N=30), and the experimental group being represented by the students of the "Liceul Tehnologic" from Ocna Șugatag (N=20).

3.2 Measures
a. Social Motivation Questionnaire (SMQ, Gong et al., 2019)
The purpose of this questionnaire is to evaluate the social motivation of primary school students. The questionnaire includes 10 items, which are divided into 2 subscales: the information search subscale (items 1, 4, 6, 8, 9) and the emotional regulation from the perspective of social motivation (items 2, 3, 5, 7, 10). These items are rated on a Likert scale from 1 to 5, with 1 representing "never" and 5 representing "always".

The questionnaire can be applied either by self-administration, or by administration in the pencil-paper version, and the time allotted for completion is approximately 15 minutes.
Regarding the validity of this questionnaire, Gong et al. (2019) after performing both exploratory (EEA) and confirmatory (CFA) factor analysis demonstrated a medium internal consistency, with Cronbach’s alpha coefficient being in the range of .50-.70.

b. The Academic Motivation Scale (AMS; Vallerand et al., 1992)
Empirically, AMS focuses on the self-determination theory of Deci and Ryan (1985) which assumes the existence of multiple factors of academic motivation, arranged along the continuum of self-determination as follows: intrinsic motivation, extrinsic motivation, and amotivation.

Vallerand et al. (1992) suggested three factors for intrinsic motivation: *intrinsic motivation to know* (IMTK) (which means that the student performs the activity for the pleasure he feels when he has obtained new learning), *intrinsic motivation to achieve* (IMTA) (which means that the learner interacts with the environment to feel competent) and *intrinsic motivation to stimulate experience* (IMES) (which means that the learner engages in the task of stimulating experience). In addition, the three factors for extrinsic motivation are: *extrinsic motivation for external regulation* (EMER) (which means that the student performs the activity to obtain external reinforcement), *extrinsic motivation for introjected regulation* (EMIN) (which means that the student begins to personalize motives for actions) and *identified regulation extrinsic motivation* (EMID) that makes the behavior valuable and important to the student and a factor for *amotivation* (AMOT) that means the student lacks intrinsic or extrinsic motivation. Each subscale consists of four items each.

The questionnaire includes 28 items that are rated on a Likert scale from 1 to 5, 1 representing “never” and 5 representing “always”, items that are divided into seven subscales.

Vallerand et al. (1992) investigated the reliability of this questionnaire by calculating Cronbach’s alpha coefficient which ranged between 0.83 and 0.86. They also calculated the scale’s convergent validity by examining the relationship between the scale’s dimensions and other measures of motivation. The results confirmed the validity of the AMS as a measure of motivation.

c. The Peer-feedback Orientation Scale (PFOS, Linderbaum & Levy, 2010)
This questionnaire aims to assess students’ dispositions towards peer feedback. The questionnaire comprises 22 items that are rated on a Likert scale from 1 to 5, with 1 representing strongly disagree and (5) strongly agree. The 22 items are divided into the following subscales: responsibility (students' sense of responsibility for their own learning process and that of a colleague of the same age); communication ability (students are inclined to give and receive peer feedback under certain circumstances); utility (the personal added value students perceive for their learning by engaging in peer feedback); self-efficacy (students' confidence in their knowledge and skills provided by valuable peer feedback) and responsiveness: (students' receptivity to peer feedback).
3.3. Research Design
The research has an experimental design, taking place over a period of six months (December 2021-May 2022).

In the pre-test phase, the students were evaluated with the aim of obtaining as much information and reference data as possible for the development of the educational intervention program, an evaluation that was completed by the signing of an informal consent for each child by his or her parent.

In the experimental phase, after the interpretation of the results of the applied questionnaires, it was decided to implement and develop an educational intervention program. The intervention program "Together we make a good team!" contains 10 activities, which will be applied in the Romanian Language and Literature and Mathematics and Natural Sciences classes. For carrying out these activities, we have considered the learning contents of the two chosen subjects. The methods used during the activities were: explanation, conversation, cooperation, role play, scaffolding, the SINELG method, the Cube method, the Know/Want to know/Learned method.

In the post-test phase, which took place immediately after the end of the educational intervention program, the measuring instruments were reapplied to observe if there were improvements in the level of academic motivation.

4. Results

<table>
<thead>
<tr>
<th>Group</th>
<th>Variables</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental group</td>
<td>Social motivation</td>
<td>1.86</td>
<td>.23</td>
</tr>
<tr>
<td></td>
<td>Peer feedback</td>
<td>1.98</td>
<td>.28</td>
</tr>
<tr>
<td></td>
<td>Academic motivation</td>
<td>2.04</td>
<td>.26</td>
</tr>
<tr>
<td>Control group</td>
<td>Social motivation</td>
<td>2.85</td>
<td>.27</td>
</tr>
<tr>
<td></td>
<td>Peer feedback</td>
<td>3</td>
<td>.20</td>
</tr>
<tr>
<td></td>
<td>Academic motivation</td>
<td>3.5</td>
<td>.25</td>
</tr>
</tbody>
</table>

After interpreting the answers obtained from the participants, we noted the following: the participants of the experimental group obtained a low average in terms of social motivation compared to the control group (see Table 1), which means that the pupils when choosing their friends do not have certain selection criteria. Most of them choose their friends just to have someone around where there is a feeling of reciprocity and understanding compared to the pupils of the control group who choose their friends based on accepting them as they are if they have common interests and subjects, and if represent valuable sources of cognitive stimulation. In addition, the participants of the experimental group obtained a low level of academic motivation (M=2.04); some of them feel that they are wasting their time in school, and one of the reasons why they go to
school is the pleasure they experience when they discover new things that they have never seen before. Compared to the pupils in the experimental group, the pupils in the control group prefer to go to school for the pleasure they experience while surpassing themselves in personal achievements, for the satisfaction they feel when they achieve excellent results in carrying out some difficult activities and because in the long term, it helps them make a rational choice in their career orientation.

Moreover, the pupils of the experimental group also obtained a low level in the case of peer feedback (M=1.98); they face difficulties in offering appreciation to their colleagues, they do not know how to maintain a balance between positive and negative appreciation, often generating conflict and they do not accept appreciation from everyone, regardless of the relationship they have with some colleagues.

Table 2: Paired samples t-test results for the experimental group

<table>
<thead>
<tr>
<th>Variables</th>
<th>Pre-test</th>
<th>Post-test</th>
<th>N</th>
<th>95% CI for Mean Difference</th>
<th>t</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social motivation</td>
<td>1.86</td>
<td>2.69</td>
<td>30</td>
<td>-0.90; -0.76</td>
<td>23.5</td>
<td>29</td>
</tr>
<tr>
<td>Peer feedback</td>
<td>1.98</td>
<td>2.90</td>
<td>30</td>
<td>-1.03; -0.79</td>
<td>15.79</td>
<td>29</td>
</tr>
<tr>
<td>Academic motivation</td>
<td>2.04</td>
<td>3.17</td>
<td>30</td>
<td>-1.30; -0.95</td>
<td>13.03</td>
<td>29</td>
</tr>
</tbody>
</table>

*p<.01.

After the end of the proposed educational intervention program, we reapplied the chosen data collection tools to observe what improvements have taken place (see Table 2). Regarding social motivation, the pupils of the experimental group understood the fact that it is beneficial to have someone around with whom to build a relationship based on reciprocity and understanding and to have friends around them who accept them as they are. Also, they understood that there must be a balance between positive and negative appreciations and to accept the appreciations offered by all their peers, regardless of the relationship they have with a particular colleague. After calculating the effect size, we obtained a d=0.32, which means that the proposed educational intervention program demonstrated its effectiveness at an average level. So, the hypothesis of the research is confirmed.

5. Discussion and Conclusion

Success during the learning process depends on several factors, among which a primary place is occupied by motivation, which are the reasons that induce studying, the atmosphere (the psychological attitude or the level of preparation for the activity), cognitive needs and interests, well-determined goals, and other volitional qualities.

Motivation is one of the most important prerequisites of school learning. A pupil’s desire to make a cognitive effort in order to acquire new knowledge is the product of several factors with combined action; starting from the pupil’s personality and abilities involved in specific learning tasks up to general mobilization for learning.
The study investigated the impact of scaffolding, social motivation, and peer feedback on stimulating the academic motivation of primary school students through the implementation of a six-month educational intervention program. The study’s findings demonstrated the importance of using scaffolding, respectively peer feedback in terms of stimulating academic motivation among pupils. These findings are in line with certain studies in the literature conducted by Yang and his colleagues (2006), Jumaat & Tasir (2016) which highlighted the importance of peer feedback in increasing academic motivation.

In the study conducted by Yang, Badger & Yu (2006), it was demonstrated that the feedback provided by teachers was less successful than the feedback provided by peers in the process of revising of some information. Teacher feedback was accepted as such but proved to be associated with misinterpretation and miscommunication, while the accuracy of peer feedback caused uncertainty, leaving discussions about interpretation which led them to seek confirmation by checking information by referring to school textbooks, asking the teacher, and/or performing more self-correction. As a result, the students gained a deeper understanding of the information through the feedback provided by their peers. Moreover, Jumaat & Tasir (2016) demonstrated that learning without effective peer feedback will lead to students’ feelings of being alone, low self-confidence, and lack of motivation, and they may have problems completing specified tasks.

Also, in this study, we found that scaffolding is an important variable in increasing pupils’ academic motivation, results corroborated with the studies carried out by Alias (2012), Ellis (2015), Chen & Law (2016).

Alias (2012), in his study, argued that scaffolding techniques help and support, motivational scaffolding provide strategies to improve the motivational state of learners, such as attribution or encouragement. Instead, Ellis (2015) proposed that scaffolding is an interesting technique that includes social interaction, discussion, and collaboration. In addition to these aspects, Chen & Law (2016) highlighted in their study the fact that scaffolding motivates learners to perform, learn, and solve complex tasks that they cannot perform alone.

Inserting feedback into classroom activities is an effective and worthwhile strategy, its importance in the act of teaching-learning-evaluation is indisputable, with the objective of reducing the dimensions between the student’s current state and the level they should reach, between the acquisition’s current and success criteria. Also, peer feedback by offering a structured learning process through which it gives the pupils the opportunity to critique and provide feedback to each other on their work helps pupils to develop certain lifelong skills such as self-evaluation.

The first limitation of this research is the limited number of participants. Thus, having a small number of participants, we cannot extrapolate the results obtained regarding the effectiveness of the proposed educational intervention program. Another limitation would be the activities; focusing more on the basic school subjects would be the reason why we obtained a medium level of effect size. For example, the insertion of
some personal development activities would have helped the pupils more to perceive the meaning of the peer feedback, because, in the case of our participants, most of them did not know how to provide it. And the last limitation of this research was represented by the chosen instruments that are not validated and adapted to the Romanian population, so that their psychometric properties cannot be modified.

A future direction of research would consist of expanding the proposed educational intervention program on a larger sample, respectively by inserting some personal development activities to demonstrate its effectiveness. Another future direction of research would be to carry out a study with the aim of investigating the impact of scaffolding, respectively social motivation on the development of self-regulated learning in primary school students.

6. Recommendations

Our recommendation is that teachers try to use peer feedback as often as possible in both the learning process and the assessment process, because in the long term, it succeeds in: facilitating the transmission and exchange of ideas, empowering students to take responsibility and manage their own learning, improve students' learning through knowledge, develop their intrinsic motivation, which leads to the development of self-regulated learning, respectively to the acquisition of certain skills and competencies such as critical thinking skills, collaboration and creativity.

Conflict of Interest Statement
The author declares no conflicts of interest.

About the Author(s)
Maricica Hotea Maricica graduated in 2022 from the Faculty of Psychology and Educational Sciences from Babeș-Bolyai University, Pedagogy of Primary and Preschool Education study programme and currently is a teacher of preschool education at Kindergarten with Extended Program No. 4 from Baia Mare, Romania. Her main research interests are the development of the following abilities and competences: self-esteem, critical thinking, autonomy, responsibility, self-worth, and intrinsic motivation.

Emanuel Sebastian Turda is an associate professor doctor at Faculty of Psychology and Educational Sciences, Educational Sciences department from Babeș-Boylai University, Cluj-Napoca, Romania. He graduated Doctoral School "Education, Reflection, Development" at Babeș-Boylai University and his research areas are oriented towards career counseling, vocational guidance, and personal development among children and teenagers.
References


