

ERD 2020**Education, Reflection, Development, Eighth Edition****THE IMPACT OF TEACHER'S FEEDBACK IN INCREASING
STUDENT'S SELF-EFFICACY AND MOTIVATION**

Emanuel Sebastian Turda (a)*, Paula Ferent (b), Crişan Claudia (c)

*Corresponding author

(a) Doctoral School "Educational, Reflection, Development", Babeş-Bolyai University, 7 Sindicatelor Street, 400029, Cluj-Napoca, Romania, turdasebastian@gmail.com

(b) Psychopedagogue at Panda Kindergarten, 30 Mircea Eliade Street, 400066, Cluj-Napoca, Romania, paula_ferent@yahoo.ro

(c) Faculty of Psychology and Educational Sciences, Babeş-Bolyai University, 7 Sindicatelor Street, 400015, Cluj-Napoca, Romania, claudiacrisan75@yahoo.com

Abstract

Generally, motivation is recognized as playing an important role in the learning process and academic success of students but- mobilizing and engaging in the task through the cognitive, behavioral and time effort investment is the product of several factors such as: factors related to personality (beliefs, emotions, attributions, etc.) and students personal abilities and others factors which is focusing on the type of interactions and climate that teachers is developing in the classroom. Everyone needs feedback to grow, especially the students because providing students engage with feedback, it should enhance learning and improve assessment performance. Formative feedback refers to that information communicated to the learner that is intended to modify his or her thinking or behavior for the purpose of improving learning and self-efficacy is the self-perceived ability to deal with specific situations. According to Bandura's theory, the judgments about self-efficacy influence the choice of situations in which we are involved, the amount of submitted effort in a given situation, the time we persist in a task, overcoming the obstacles and the resistance of pressure, emotional reactions during anticipation or involvement in that situation (for example the level of stress, anxiety). The aim of this study was to examine the effect of teachers feedback on student's self-efficacy and motivation in learning process. The participants were students aged 11-16 years (N=300).

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1. Introduction

According to the general definition offered by Schunk et al. (2008), motivation is the process through which goal-directed activity is initiated and sustained. In scholastic context ‘motivation refers to the propensity, need, desire and compulsion of a student to participate and succeed in the learning process’ (Moenikia & Zahed-Babelan, 2010; Yunus & Wan Ali, 2009).

In the educational environment, motivation aims at identifying those strategies which encourage children to develop abilities that will help them meet educational requirements. ‘‘The motivation for learning is developed through the interaction of two types of factors: 1) *intrapersonal factors* (which are related to children) and 2) *interpersonal factors* (which are related to the educational environment and the family environment)’’ (Opre et al., 2015, p. 39).

Valorizing a learning experience depends on the source of individual motivation:

- The extrinsic motivation, associated with obtaining a reward (marks, prizes, medals etc.) (Krause et al., 2003).
- The social motivation, associated with obtaining worth or recognition from relevant people (schoolteachers, parents). This type of motivation is different from pure extrinsic motivation, because for a child, how an adult relates to him/her is more important than receiving a reward for his/her behavior (Bandura, 1978).
- Performance motivation refers to that type of motivation associated with the need of being in competition and demonstrating superiority over others. Performance motivation is based on two subtypes of motivation (McClelland et al., 1989):
 - -Motivation derived from the need of success, common with students who tend to be competitive, and try to demonstrate that they are better than others and can succeed.
 - -Motivation derived from the need to avoid failure, common with students who tend to avoid situations they believe they cannot handle, in order to protect their self-esteem and their feeling of self-efficacy.
- Intrinsic motivation refers to situations when a task is achieved because the achievement itself is rewarding. This type of motivation is based on interest, curiosity, desire to develop one’s abilities or pleasure associated with its accomplishment.

Bandura (1986) defines self-efficacy as a person’s belief in his/her own capacity to mobilize the necessary cognitive and motivational resources in order to successfully accomplish a task and a person’s capacity to organize and execute an action which ensures the achievement of a purpose (Pintrich & Schunk, 1996).

Usually, people who consider themselves as inefficient tend to limit their behavior of initiation and involvement in the task, and the task’s difficulties are considered by them as being hard to accomplish. In contrast to these people, the ones who are confident in their competences will look for ways to exercise their control upon the environment and to obtain the wanted performances (Băban, 2011).

According to Bandura (1986), the perception of each person upon his/her competence comes from four sources:

- *previous performances* (for example, each and every student knows his/her past successes and failures, experiences that become reference points when a certain task must be fulfilled).
- *observing the performance of a task made by another person* (for example, when a student witnesses a colleague's performance of the same task, the student makes comparisons and evaluates his/her own competence in the fulfillment of that task).
- *persuasion* (which refers to interventions made by teachers and colleagues, in order to persuade a student that he/she is capable to accomplish the task at hand).
- *physiological and emotional reactions* (which appear when the individual has to perform an activity; these reactions are considered a sign of the person's ability to accomplish a task).

Numerous empirical studies carried out in educational psychology (Lau & Roeser, 2002; Liem et al., 2008; Schunk et al., 2008) have demonstrated that students with a high level of self-efficacy are more likely to invest more effort and engage in learning tasks, in order to obtain optimal academic performances.

2. Problem Statement

One of the factors related to educational environment which can assure an optimal level of motivation among students is **feedback**. Feedback is an essential component in all learning contexts and leads to the fulfillment of certain purposes including the evaluation of students' achievements, development of students' competences and understanding, respectively their motivation and self-confidence growth (Hyland & Hyland, 2006).

According to Sadler (1989), Hattie and Timperley (2007), feedback is considered to be an information whose purpose is to reduce the gap between "how it is" and "how it should be". For example, when a teacher or a colleague gives information about a student's work, or about the given answer (either verbal or as a written answer), it helps the student to be aware of his/ her knowledge level and about how comprehensible they are, so that the student can achieve efficiency regarding his/ her working tasks.

Hattie and Timperley (2007) argued that feedback can be linked to the answer of the three following questions:

1. "Where am I going?" (What are the goals?): when students understand their goals and how they can be achieved, then the feedback offered is more powerful. Without such an understanding, this feedback is confusing, disorienting and tends to be focused on the student, not on the student's task/activity.

2. "How am I going?" (What steps do I need to take in order to achieve my purpose?): this question implies feedback related to certain expected standards, to past performances and/ or to the success or the failure obtained at a certain working task.

3. "Where to next?" (What kind of activities do I have to do in order to make satisfying progress?) This feedback can help the student choose with more perspicacity future challenges, to self-adjust his/her learning process, to attentively select his/her strategies and processes in order to cope more efficiently.

In order to be effective, feedback related to the formative evaluation has to possess the following characteristics:

- To be offered immediately: feedback is more effective if it is provided timely, because the students can remember how they tackled each task (Race, 2006).
- To be motivational: feedback may have a positive or a negative effect upon the student's motivation and self-esteem. This affects student's personal feelings, which in turn, affect the student's involvement in the learning process (Juwah et al., 2004).
- To be individualized: each student has his own weaknesses and strengths. So, to be efficient and to allow students to improve their skills, feedback has to be personalized and adapted to the student's strong and weak points (Hatziapostolou & Paraskakis, 2010).
- To be manageable: feedback has to be sufficiently comprehensible in order to assure that the students manage to identify their strengths and weaknesses. Therefore, feedback should be easy to manage, to allow students to understand it easily and to benefit from it (Race, 2006).
- To be directly related to the evaluation criteria/ to the learning results: the evaluation criteria encompass what the students had to accomplish, the feedback offered by schoolteachers should help the student to identify his/her knowledge deficiency and should help the students to analyse their errors and specific preconceptions (Yorke, 2003).

In addition to these features, Opre et al. (2015) sustained that if the following conditions are met, feedback can be an efficient instrument in motivating students' learning behavior:

- Feedback must be offered in a relatively short time frame from the end of the task.
- Feedback must be related to one criterion, respectively to a competence level which should be achieved, not to an excellence standard.
- Feedback has to be corrective, to offer an explanation regarding errors and strategies aimed at improving performance.

Usually, students with a positive mindset perceive feedback as a growing opportunity, meanwhile students with a negative mindset can be discouraged (Gollwitzer & Sheeran, 2006; Hatziapostolou & Paraskakis, 2010).

Feedback can serve different functions depending on the particular learning perspective under which it is viewed and the underlying assumptions about the learning context on which research in these areas are based (see table 01).

Table 1. Perspectives of learning and the nature of feedback (Hattie & Gan, 2011)

The philosophical perspective	Aassumptions	Learning View	Nature of feedback
Objectivism- the reliable cognizance of the existing world	-reality is formed by entities; -entities, their properties and their interrelation create the surrounding world; -cognitive functions related to creating these entities' representations and learning, imply correct representation.	The behaviorism and the informational processing; The existence of those three types of learning: responsible learning, the operant conditioning one and observational learning	Feedback represents an external response which contains symbols that match with the external entity; Feedback strengthens the actual representation, or it corrects certain misinterpretations of the external entities, by providing relevant information.

<p>Constructivism: each student constructs his/her own reality through the interpretation of external world experiences</p>	<p>-reality is an interpretation based on personal experiences; -learning takes place through the creation of a personal meaning or through cognitive activities, when a student tries to offer a meaning to life.</p>	<p>Self-regulated learning</p>	<p>Feedback helps students in the knowledge construction process depending on a certain context or content. Feedback is used to build reflection, through connection with past experiences, mental structures and student beliefs.</p>
<p>Socioculturalism: knowledge development is shared.</p>	<p>-reality exists through the student and through the society's influence and the student-society relation. -learning involves the social negotiation of the meaning.</p>	<p>Zone of proximal development (Vygotsky, 1986)</p>	<p>Feedback is a social negotiation through adequate and significant usage of language; Feedback implies a mutual communication process of the meaning's constructions. Feedback quality depends on the interaction process between colleagues and it doesn't only depend on the person that gives the feedback.</p>
<p>Visible learning and teaching: creative knowledge development is based on the development of certain learning strategies used to adjust comprehension.</p>	<p>-knowledge development is an individual, shared, and interactive process; -reality exists due to the assessment criteria's development such as: truthfulness, worthwhileness or integrity of the student experiences.</p>	<p>The feedback classification proposed by Hattie and Timperley (2007).</p>	<p>Feedback involves an explicit discourse, consciously focused on assimilation, familiarization and evaluation. Feedback quality depends on the changes of the learning strategies and the teaching strategies of the teachers, students and colleagues having the purpose of achieving the objectives related to learning.</p>

Hattie and Timperley (2007) suggested that feedback can help students “reduce discrepancies between the level of understanding, actual performances and learning goals”, through their commitment to one of the four different levels of feedback function.

At the first level, feedback can involve students in the task level, for example by providing information related to solving a problem correctly (for example: explaining restrictions and demonstrating their unreliability). This type of feedback is most frequently used in the classrooms (Sheen, 2004) and the majority of teachers and students perceive it as corrective feedback (Peterson & Irving, 2008).

At the second level, feedback can also be followed at the process level, for example by providing certain task processing strategies and offering clues to help students find certain information (for example: “You could show why the test was fair, by highlighting the control variables”). This type of

feedback can lead to alternative processing, reducing cognitive load, providing strategies for detecting errors, reassessing one's approach with the purpose of looking for useful and relevant information, and for engaging in task completion strategies.

At the third level, feedback at the self-regulation level, includes skills related to self-evaluation, expanding effort in task engagement or the seeking of additional information related to the feedback provided (an example: "What would happen if...?"). This kind of feedback can boost confidence and helps students engage further in tasks, it provides conditional knowledge in the form of reflective questions, it helps create internal feedback pertaining to their success or failure.

At the last level, feedback can be seen as directed to one's self, which in the majority of cases doesn't provide information about the ways of improving the task's performance (an example: "You did a great job!").

Certain studies (Hyland & Hyland, 2006; Kessels et al., 2008) have demonstrated that feedback offered to students by teachers, with or without praise, have led to lower engagement and effort, and a high level of confusion and discouragement, respectively.

Students prefer informative feedback, because it has long term benefits (Ball et al., 2009; Ferguson, 2011; Jonsson, 2013; Lipnevich & Smith, 2009; Scott et al., 2009; Whittington et al., 2004) and they appreciate feedback which is focused on their activity in an individualized manner (Carless, 2006; Holmes & Papageorgiou, 2009; Poulos & Mahony, 2008; Price et al., 2010).

From the perspective of social-cognitive theory, teacher's feedback constitutes an environmental variable that influences self-efficacy (personal variable) (Schunk, 2003; Schunk & Zimmerman, 1997). Studies have shown that feedback which offered students information about improving their learning strategies (Zimmerman & Kitsantas, 2002) and feedback that linked students' success with their use of these strategies, both contributed positively to improving self-efficacy (Schunk & Rice, 1987; 1992, 1993).

Taking into consideration the fact that feedback influences self-efficacy's development, Chan and Lam (2010) have carried out a study with the purpose to identify the way through which feedback affects the self-efficacy level through Skinner's concept of "control" (1996). Adopting Skinner's terminology, referring at an academic setting, students represent 'agents of control', learning strategies are the means of control and the educational goals are designed as being the result of controlling. These researchers have examined the following types of feedback: formative feedback (= it offers students the necessary tools for achieving their goals and thus positions them towards their learning goal (McAlpine, 2004), summative feedback (=it focuses on outcome without empowering students with the means to achieve the goal), self-referenced feedback (= it helps students to improve their strategies themselves and to be actively involved in the tasks' completion) and feedback oriented towards norms (= it stimulates students to demonstrate their ability by outperforming others (Popham, 2001). This way, the results demonstrated that formative feedback has offered students information regarding how to improve their learning strategies, while feedback oriented towards norms has proved to be a negative and an inefficient one, because the social comparison is not a predictor variable for self-efficacy growth, referring to the students' learning process.

Besides these aspects, some researchers (Ames, 1992; Bangert-Drowns et al., 1991; Sadler, 1989; Salomon & Globerson, 1987; Voerman et al., 2012) sustain that feedback offered by teaching staff helps students to focus more on the learning process, it helps them to become aware of their level of performance, promotes learning and it encourages students that even if the task can sometimes be difficult, it can still be realized.

3. Research Questions

The main research question that directed our study is the following:

Q1. What is the impact of teacher's feedback on increasing the student's motivation and self-efficacy?

4. Purpose of the Study

The purpose of this research was to identify the impact of feedback (offered by the teaching staff) upon the intrinsic motivation and upon the self-efficacy of middle school and college students. The objectives that emerge from the intended purpose are the following:

- The evaluation of intrinsic motivation and self-efficacy of the participants included in the research.
- Identifying the role of feedback upon the intrinsic motivation and self-efficacy of participants;

5. Research Methods

5.1. Research hypothesis and variables

The hypothesis from which we started this research is the following:

- There are major differences in terms of gender regarding the intrinsic motivation and self-efficacy in the learning process.

The independent variable: gender

The dependent variable: intrinsic motivation, self-efficacy

- The feedback offered by the teaching staff moderates the ratio between the levels of intrinsic motivation and self-efficacy in students.

The independent variable: the study level

The dependent variables: intrinsic motivation, self-efficacy, feedback.

5.2. Participants

Participants in this study were adolescents between the ages of 14 to 18 years (N=300, M=16 ani, SD= 1,41) (as shown in table 02), students at National College "Dragoș-Vodă", at the Pedagogical High School "Regele Ferdinand" and at the Technological High School "Marmația".

Table 2. Distribution of participants included in the study by gender and level of study

Gender	Level of study	N
Masculin	Gymnasium	77
Feminine		72
Masculin	High-School	72
Feminine		79

5.3. Measures

5.3.1. Intrinsic Motivation Inventory (Intrinsic Motivation Inventory, IMI)

IMI represents a multidimensional inventory used for measuring intrinsic motivation and self-adjustment (Deci et al., 1994; Plant & Ryan, 1985; Ryan, 1982; Ryan et al., 1983; 1990).

The questionnaire contains the following subscales:

- interest/ enjoyment
- perceived competence
- effort/ importance
- value/usefulness
- pressure
- perceived choice

The author of this inventory sustains that the interest/ enjoyment subscale is considered the most well-suited subscale to measure intrinsic motivation.

The inventory includes 45 items that are scored on a Likert scale from 1 to 7 where 1 represents “it is not true”, 7 “it is totally true” and some items that are reversely scored (for example the items: 2, 9, 11, 14, 19, 21)

5.3.2. General self-efficacy Scale (General Self-efficacy Scale, GSE, Schwarzer & Jerusalem, 1995)

This scale has been created to evaluate the feeling of self-efficacy at a general level, with the purpose of mentally anticipating the daily obstacles we must deal with, and to adapt after we have been through some stressful moments.

This scale includes 10 items scored on a Likert scale from 1 to 4 where, 1 represents “It is not true”, 4- “absolutely true” and can be administrated only to persons over the age of 12.

The concept of self-efficacy reflects optimistic self-convictions (Schwarzer, 1992) and its role is to facilitate setting objectives, effort invested, persistence in front of obstacles and rehabilitation after failure.

Regarding the validity and fidelity of this questionnaire, following the studies which had been carried out, researchers from 23 countries have obtained an a Cronbach coefficient between .76 and .90.

5.3.3. The questionnaire that evaluates the role of feedback offered by the teaching staff

A questionnaire has been compiled, that includes a series of assertions related to the importance of feedback offered by the teaching staff, regarding intrinsic motivation and self-efficacy. (example items:

“Feedback offered by teachers makes me feel capable in fulfilling the task”, “Teacher’s feedback makes me feel proud of myself”). The questionnaire contains ten assertions that are scored on a Likert scale from 1 to 5, where one represents “not at all”, 5- “absolutely true”.

5.4. Research design

In order to test the proposed hypotheses, during the research, a quasi-experimental and correlational design has been used, in which the predictor variable is the intrinsic motivation, with self-efficacy as criterion variable, while feedback represents the moderator variable. A moderation analysis has been used to test if feedback is a moderator regarding the relation between intrinsic motivation and self-efficacy.

5.5. Procedure

To begin with, the purpose of these scales will be explained. Afterwards, the people included in the study will be informed regarding the scale’s filling instructions, and also about the responses’ confidentiality. The scales will be filled in a pencil- paper way, individually, and the allotted time will not be restricted.

6. Findings

In order to verify if there are significant differences at gender level regarding the intrinsic motivation and self-efficacy (hypothesis 1), the t test has been calculated for independent samples.

Table 3. Independent T-test for intrinsic motivation and self-efficacy regarding the gender of participants

Gender	Variable	N	Mean (M)	Std. deviation (SD)	Independent T-test
Masculin	Intrinsic motivation	149	M=3.37	SD=.620	$t_{(298)} = -.61$; $p > 0.05$ ($p = 0.50$)
Feminine		151	M=3.42	SD=.624	
Masculin	Self-efficacy	149	M=3.526	SD=.07	$t_{(298)} = .012$; $p > 0.05$ ($p = 0.9$)
Feminine		151	M=3.525	SD=.71	

According to the obtained results, there is no significant difference at gender level regarding intrinsic motivation ($t_{(298)} = -.61$; $p = 0.50$), and also self-efficacy ($t_{(298)} = .012$; $p = 0.9$) (see table 03). Therefore, *the first hypothesis isn’t confirmed.*

Table 4. Descriptive analysis and Pearson r correlation coefficients for the measured variables

Variable	Mean (SD)	1	2	3	4	5
1. Gender	1,50 (0,50)	-				
2. Leve of study	1,50 (0,50)	.04	-			
3. Intrinsic motivation	3,40 (0,62)	.03	-1.08	-		
4. Self-efficacy	3,52 (0,70)	-.01	.04	.45*	-	
5. Feedback	3,18 (0,71)	-	.06	.51*	.31*	-

* Correlation is significant at $p < 0.01$

Analyzing the results from table 04, it is noted that there are significant correlations between the measured variables. Thus, the following correlation coefficients have been obtained: between self-efficacy and intrinsic motivation a correlation coefficient $r_{(298)} = 0,45, p < 0,01$; between feedback and intrinsic motivation a correlation coefficient $r_{(298)} = 0,51, p < 0,01$ and between feedback and self-efficacy a correlation coefficient $r_{(298)} = 0,31, p < 0,01$; thus the feedback offered to students by the teaching staff does influence the intrinsic motivation and does increase self-efficacy levels in the learning process. As r represents an expression of the effect's size, reporting at Cohen's criteria (1988), one can note that the relation between feedback, intrinsic motivation and self-efficacy is a moderate one. Calculating the coefficient of determination R^2 gives us: $R^2=0,21$ (which means that just 21% of self-efficacy's variable variation is explained by intrinsic motivation variable); $R^2=0,26$ (just 26% of the feedback's variable variation is explained by intrinsic motivation variable) and a $R^2 = 0,10$ (it means that 10% of the feedback's variable variation is explained by self-efficacy).

Table 5. The moderating role of feedback provided by teachers in the relationship between increasing intrinsic motivation and student self-efficacy

	b	SE	t	p	IC 95%
Constant	3.67	.79	4.63	.00	[2.11; 5.23]
Intrinsic motivation	.50	.24	1.35	.05	[.31; .63]
Feedback	.55	.25	2.18	.03	[-1.05; .05]
Feedback* Intrinsic motivation	.19	.07	2.66	.00	[.05; -.33]

Model: $R=.48$; $R^2=.23$; $F(3,296)=30.23$; $p<.001$
 Interaction: $\Delta R^2=.01$; $F(3, 296)=7.11$; $p<.001$

As evidenced by table 05, first of all, the results obtained after the analysis indicate the fact that although teachers' feedback does not predict the extent to which student's intrinsic motivation and self-efficacy in the learning process increases, teachers feedback operates as a moderator. Thus, feedback significantly affects the relation between intrinsic motivation and self-efficacy ($p<.005$). Thereby, students with a high level of intrinsic motivation and a high impact of feedback offered by teaching staff, have a high level of self-efficacy in the learning process.

7. Conclusion

The teacher has the capacity to offer feedback to the students regarding the learning activity. The feedback has to be correct, including a tangible explanation regarding errors and bringing to the student's attention performance improvement strategies.

Students are capable to fulfill their purposes, to develop certain competences and abilities, respectively to increase their motivation and self-trust, if only the teacher transmits feedback, either a positive or a negative one.

Students' motivation is very important, especially in a scholastic context. We can say a student is motivated when he is involved in all the aspects of the learning process. This research had as its main purpose the investigation of impact of teaching staff feedback upon the increase of the students; intrinsic motivation and self- efficacy level, in the learning process. Results have shown that feedback represents a

moderator variable in the link between intrinsic motivation and self-efficacy. Thereby, by offering direct, positive, immediate, criterion-related and corrective feedback, the teaching staff helps students change their type of study motivation and will help to increase their self-efficacy feeling.

One of the limitations of this research is the questionnaire that measures the teaching staff feedback's role. The use of the questionnaire is not adapted to the Romanian population, so that its psychometric features remain unchanged. Another limitation could be the fact that the exogenous variables (for example: the way of teaching, parents' attitude towards learning) and the endogenous variables (for example: personality features, values) were not included.

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