

FEEDBACK MECHANISMS IN THE EDUCATIONAL PROCESS AND THE PSYCHOLOGICAL PROBLEMS OF THEIR APPLICATION

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Abstract: This article examines the role of emotional effects in providing feedback in training. The research was conducted with the participation of 40 students. In addition to studying the psychological mechanisms for establishing feedback in training, the dynamics of various variables during feedback were also examined. During the study, it was observed that changes in students' motivation, self-assessment, and learning achievements were higher under negative emotional influences compared to positive ones, and a negative correlation was found ($p=0.03$). This fact indicates that feedback undergoes a significant change during positive and negative emotional experiences, and the more long-term these relationships are, the more active the moderator changes become.

Keywords: education, training, feedback, emotional effects, attitude toward training

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Introduction

In the modern era, various factors, including the pandemic, weaken the effectiveness of training activities, primarily causing delays in the formation of weak knowledge, skills, and habits (UNESCO, 2020; OECD, 2021). The facts show that the impact of various processes is due to the weakening of a complex feedback mechanism or a reduction in its application to learning (Hattie, 2009). Through the feedback mechanism, it is possible to monitor changes in the learning process and steer the conditions in a more purposeful direction (Shute, 2008; Nicol & Macfarlane-Dick, 2006). Of course, establishing feedback in training does not depend solely on the instructor's attitude, communication style, and competence. To do this, it is necessary to create a conducive learning environment (Fraser, 2012; Jabbarov, 2021; Jabbarov et al., 2024). Although a supportive educational environment is understood differently in various contexts, its core component is creating conditions that support the development of creativity (Craft, 2005; Beghetto, 2010). The teaching process has very complex dynamics; a wide spectrum of processes exists, from assessment to communication style (Black & Wiliam, 1998). Properly managing these processes and applying the necessary feedback mechanism to them is considered one of the main duties of an educator (Hattie & Timperley, 2007). However, effective use of innovations is not considered possible without providing feedback (Fullan, 2007; Jabbarov, 2018). It should be noted that in recent times, psychological and pedagogical sources have focused more on the methodological aspects of education, as well as on diagnostic, assessment, and monitoring functions (Brookhart, 2008). The main reason for adhering to these points is that, the most researched topics in the monitoring and regulation functions of instruction are assessment and the monitored components, and researchers are trying to investigate the impact of assessment procedures on students' motivation and learning quality (Black & Wiliam, 2009; Andrade, 2010). Furthermore, the impact of assessment on students' self-competence levels is also of significant importance (Brookhart, 2013; Jabbarov and Ibrahimova, 2012). The essence of the problem is that researchers are trying to determine the key factors that ensure the effectiveness of these procedures—



that is, assessment (Sadler, 1989; Vakil, 2021). The growing trend of person-centered training in the direction of humanizing modern education requires the establishment of dialogue and the achievement of common results among educational stakeholders (Vygotsky, 1978; Rogers, 1983). Collaborative teaching and learning practices ensure effective results and the acquisition of more practical skills (Bandura, 1986). However, the question of how this process is realized remains a significant one. It is believed that to ensure the process's optimality, a feedback mechanism based on information exchange and mutual interaction yields more consistent results (Nicol & Macfarlane-Dick, 2006). In psychological research, this aspect is twofold: on the one hand, the pedagogical communication of educational subjects and their attitude toward education emerge as a complex problem (Wentzel, 1997); on the other hand, Western sources pay more attention to the components of communication (Pianta, 1999). Feedback is a significant object of study for external researchers, and studies in this area emphasize its importance (Hattie & Timperley, 2007; Vakil, 2021; Jabbarov, 2021). The main purpose of this study is to identify the structure of the feedback learning and feedback mechanism through emotional effects, and to investigate the impact of the feedback mechanism that emerges during this process on students' learning outcomes, motivational potential, and self-regulation skills (Zimmerman, 2002; Deci & Ryan, 2000).

Literature review

In the learning process, feedback serves as one of the main concepts extensively studied in educational psychology. This concept is generally characterized as a response to information transmitted in a communication process and is considered a mechanism that plays a crucial role in increasing the effectiveness of learning. (Jabbarov, 2021; Vakil, 2021).

The nature of feedback has been explained by various researchers from different perspectives. In the context of communication theory, A. A. Kalashnikov evaluates feedback as an integral component of speech activity and emphasizes its close connection to an individual's analysis of their



own activity and regulation of their future behavior. According to this approach, feedback is not just a response but also serves as a crucial mechanism that ensures the continuity of the communication process.

Scientific research in the behavioral sciences has further deepened the theoretical foundations of the concept of feedback. According to the “law of effect” proposed by Edward Thorndike, behaviors accompanied by positive outcomes are more likely to be repeated, while negative outcomes decrease this probability. In this regard, the reinforcing function of feedback is of particular importance. In a later stage, B. F. Skinner, within the framework of operant conditioning theory, further elaborated on the mechanisms by which feedback influences behavior by systematizing the concepts of positive and negative reinforcement.

From cognitive and constructivist perspectives, feedback is viewed more as part of the learner’s cognitive activities. Jerome Bruner interprets feedback as information that shows the extent to which an individual’s understanding of reality is accurate. According to this approach, feedback is not just a means of evaluation, but also a crucial mechanism for restructuring and enriching existing knowledge. Constructivists, on the other hand, believe that new knowledge is formed through interaction with prior knowledge, and in this process, feedback plays a transformative and developmental role.

In the sociocultural approach, Lev Vygotsky explains feedback as a result of interaction that occurs in a social environment. According to him, feedback is first formed between people and is later integrated into an individual’s internal psychological processes. From this perspective, the mutual relationship and communication between the teacher and student are considered one of the key factors in the creation and effective development of feedback.

A review of modern research shows that feedback is considered not just the transfer of information, but also a complex psychological mechanism closely linked to motivation and self-assessment. Extensive research by John Hattie and Helen Timperley shows that feedback is one of the variables with the greatest and most significant impact on learning outcomes. They distinguished four levels of feedback—task, process, self-regulation, and personal—and noted that its effectiveness



is linked to its proper establishment at these levels.

Furthermore, U.K. Estes highlights two main factors that influence the formation of the feedback mechanism: the motivational and informational components. The motivational component shapes the learner's emotional responses, while the informational component is the factor that evaluates the correctness of their performance. This approach shows that feedback is closely linked not only with cognitive but also with emotional processes (Jabbarov, 2018; Jabbarov and Ibragimova, 2013).

Some researchers also evaluate feedback as a means of regulating the mutual relationship between a teacher and a student. For example, Petrushenko and Bessonov explain feedback as a mechanism for adaptation and self-development. They emphasize its important role in regulating behavior under changing conditions. This approach suggests that feedback affects not only learning outcomes but also personality development.

Overall, a review of the literature indicates that the concept of feedback has historically evolved from behaviorist approaches to more complex meanings in modern cognitive, constructivist, and social frameworks. In modern educational psychology, feedback is not only an integral part of the learning process but also serves as one of the primary factors in shaping motivation, self-assessment, and academic achievement. In particular, the influence of emotional components on the feedback mechanism further increases the relevance of research in this area.

The main hypothesis of the study

The study posits that to create effective feedback in training, it is necessary to amplify the impact of positive emotional additions on behavior within the communication process. In the training process, such positive emotional additions increase self-assessment and create conditions for its more adequate formation.

Research Methodology



The study was conducted with 40 psychology students during the training process at the “Psychodiagnostics and Psychoconsultation” center. During the study, experimental and control groups (20 participants each) were created, and the procedures required for the research were followed. The number of male and female students was equal. During the study, the instructor conducting the training was given 8 feedback forms () to determine the indicators of positive and negative feedback. The following feedback forms were used to provide positive feedback:

“You are attentive.”

“I like your ideas.”

“You’re turning out great, too.”

“That’s a very smart idea.”

The following address forms were used to create negative feedback:

“You didn’t understand me.”

“I don’t like your ideas.”

“You’re no good either.”

“Your opinion is an unfounded opinion.”

The training process was structured so that each student participating in the group could express their opinions several times. The parameter of academic achievement was used to study the effect of such a situation on the students’ performance during both positive and negative reinforcement.

The study was conducted in two phases. In the first phase, measurements were taken. In the second phase, the interventions were used in groups, measurements were taken again one month later, and the results were compared. To this end, the study used the “Motivation Questionnaire” (2006) and the “Self-Assessment Scale” (Motkov, 1979), and the students’ grades from the training were recorded.



Processing of the results

In the first phase of the study, diagnostic measurements were generally conducted with the students. The purpose here was to assess the pre-experimental situation. Academic achievements were taken into account in the measurement, and the Training Achievement Methodology was used.

Table 1. Pre-experimental diagnostic measurements in students

Methodology	Diagnostic Levels N=40		
	higher	average	low
Learning achievements	41.72	40.04	33.00

As shown in Table 1, without any developmental work, the measurements indicated that the scores students achieved without applying feedback mechanisms were adequate for the initial stage.

Table 2. When using a positive “reinforcing effect” the effect of changes in learning achievements on feedback

Positive emotional additions to behavior	Training achievement indicators (N=40)		
	higher	average	low
“You are attentive.”	41.34	36.11	22.56
“I like your ideas.”	42.19	40.33	17.47
“You’re turning out great, too.”	42.27	40.67	17.1
“That’s a very smart idea.”	38.55	35.95	25.04

As shown in Table 2, when using the positive reinforcement effect of, an increase in training outcomes was observed compared to the initial measurements. Specifically, 33.00%, 41.72%, and 40.04% corresponded to 41.34%, 40.67%, and 17.1%, respectively. 41.34%, 40.04%, and 33.00%



changed. The increase in training scores once again demonstrates that positive emotional reinforcers play a crucial role in training feedback. These changes are long-term in nature, which methodologically attests to the reliability of our study.

Table 3. Training achievements when using negative feedback. The effect of changes in training achievements on feedback

Negative emotional additions to behavior	Training achievement indicators (N=40)		
	higher	average	low
“You didn’t understand me.”	35.27	33.11	31.64
“I don’t like your ideas.”	36.16	33.89	29.99
“You’re no good either.”	42.06	31.68	26.24
“Your opinion is an unfounded opinion.”	38.57	38.12	23.12

As seen in Table 3, negative emotional additions lower training achievements. However, it should be noted that during teacher-student relationships, thoughts that are directly aimed at evaluating cognitive abilities are perceived by students as thoughts directed at their personality.

The statement “Your opinion is an unfounded opinion” has a smaller impact on learning outcomes than the others (38.12%; 38.57%; 23.32%).

Conclusions

Our research showed that when providing feedback during the training process, the method of communicating in the form of thoughts—using negative or positive emotional additions as—significantly affects students’ training achievements. Establishing feedback on a positive foundation in training increases cognitive activity and improves attitude toward training.

The results of our research on increasing students’ cognitive activity and creating a feedback mechanism are indirectly consistent with the findings of many studies (Ermakova, T.I., Ivashkin E.G.



(2013), Grigorieva E. Yu. (2011), Abolina N.S., (2012), Chai M. Tyng, et.al, (1998), Blumberg, (1972), Topping, KJ, Smith, EF, Swanson, I., & Elliot, A. (2000).

However, some studies also observe different and contradictory findings (Rowe, et al., 2012; Nicol and Macfarlane-Dick (2006)). These studies have found that feedback prevents the assessment of, facilitates generalization, reveals knowledge gaps, and helps prevent deviation from the ideal outcome.

According to a number of researchers, two key points emerge for recognizing and managing the emotional dimensions of feedback: the importance of building positivity in feedback practices and teaching students to cope with and use feedback effectively. Ensuring effective feedback should consider 'helping learners address their emotional and cognitive issues' (Moore and Kuol 2007). A number of researchers, however, support the idea that promoting positive emotions in feedback exchange will increase the student's ability to pay attention to, accept, and understand feedback, while also reducing negative emotions (Fredrickson 2001; Fredrickson and Cohn 2008).

In conclusion, positive emotional effects play a crucial role in establishing feedback, and using these effects in the training process enhances training outcomes. By creating a special education environment, it is possible to ensure the feedback mechanism and thereby develop instructional planning and a creative mindset.

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