

# The Effect of Formative Assessment on the Level of Students' Sport Self-Efficacy in College Physical Education

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**Abstract:** This study examines the mechanisms by which formative assessment influences students' sports self-efficacy in college physical education. As a continuous evaluation approach in teaching, formative assessment effectively enhances students' understanding of their athletic abilities and builds their confidence through features such as timely feedback, process-oriented focus, and diversified evaluation methods. The findings indicate that formative assessment boosts students' sports self-confidence via feedback mechanisms, strengthens their persistence in sports through its process-oriented characteristics, and shapes their perception of athletic competence through multifaceted approaches, thereby comprehensively improving their sports self-efficacy. This research provides theoretical foundations and practical guidance for reforming physical education assessment systems in higher education, holding significant implications for enhancing students' physical education outcomes and promoting their holistic physical and mental development.

**Keywords:** Formative Assessment; Self-Efficacy; College Physical Education Teaching; Sports Confidence; Sports Persistence

## 1. Introduction

Due to the ever-changing development of educational philosophies, university physical education evaluation is experiencing drastic changes. The conventional summative assessment places too much emphasis on outcomes instead of the learning process and hence cannot fully mirror the level of student learning and development. As a process-based form of evaluation, formative assessment involves ongoing evaluation and feedback throughout the course of instruction to determine how best to improve teaching. At the same time,

self-efficacy, or the personal perception of one's ability to achieve goals, plays a vital role in learning motivation of the student, behavioral decisions, and endurance. In the field of university physical education, there has been a shift in the focus of research to improving the sports self-efficacy of students using formative assessment. The purpose of this paper is to investigate the processes through which formative assessment affects students sports self-efficacy and give both theoretical backing and practical guidance on how to transform physical education evaluation systems.

## 2. Theoretical Foundations of Formative Assessment and Self-Efficacy

### 2.1 The Connotation and Characteristics of Formative Assessment

The concept of formative assessment was initially proposed by an American educational researcher, Scriven (1967) in the article entitled *The Methodology of Evaluation*. It can be defined as the assessment of the learning process and its results of students carried out during the teaching process with the aim of enhancing and perfecting the process of instruction, also called process evaluation. On the principle of feedback, formative assessment involves dividing teaching or training material into several unit objectives, and testing the attainment of each objective by students at various intervals in the instructional process. The findings of the evaluation become a ground to enhance the future teaching or training, allowing making necessary changes and additions to the instructional materials and improving the teaching and training techniques<sup>[1]</sup>.

The main aspects of formative assessment are: the importance of timely feedback to improve the learning and teaching process; the emphasis on the learning process and personal experience; the prominence of interactivity and interaction between multiple factors; and the necessity of immediate and ongoing feedback. Formative

assessment is carried out in the course of teaching, whilst summative assessment takes place at the end of a learning stage. The critical functional properties of formative assessment are instantaneous feedback and dynamic changes, whereas summative assessment offers an ultimate assessment at the end.

## **2.2 Theoretical Framework of Self-Efficacy**

Self-Efficacy Theory (as put forward by American psychologist Albert Bandura) is also a very important element of the social learning theory model. Self-efficacy is the personal evaluation and assurance of a person to be successful in a particular action and not merely an evaluation of the capability of a person to do it. The theory states that individuals are motivated by what they believe in what they can do and this determines what they choose to do, how much effort they put into doing it, and the results they obtain as outcomes of their behavior<sup>[2]</sup>.

Self-efficacy is based on four sources of information: direct experience (personal experience of success and failure, with the strongest effect), vicarious experience (observation of the effects of others behavior), verbal persuasion (support and encouragement by others) and emotional arousal (the level of tension or anxiety experienced by an individual; excessive levels of tension or anxiety may reduce self-efficacy).

The self-efficacy mechanism in physical education learning is expressed in three dimensions: Firstly, it can affect the cognitive regulation and behavior motivation- students with a high level of self-efficacy are imagining successful results and paying attention to the demands of the tasks, and vice versa- students with a low self-efficacy are doing the opposite; Secondly, it can influence the behavioral decisions and approach to difficulties- high self-efficacy students are courageous to tackle and actively confront challenges, whereas low self-efficacy students will usually withdraw and have no perseverance; Thirdly, it determines the thinking and emotional reactions patterns- people with a low self-efficacy pay more attention to their shortcomings and overestimate challenges, and people with a high self-efficacy pay more attention to situational demands and double their efforts in case of obstacles<sup>[3]</sup>.

## **2.3 The Correlation between Formative**

## **Assessment and Self-Efficacy**

The concept of formative assessment and self-efficacy are interrelated in college physical education teaching. The formative assessment focuses on constant monitoring and feedback of student learning progress throughout the teaching process, which is consistent with the processes by which self-efficacy is developed. Studies have shown that formative assessment assists students in developing proper self-perception through the provision of timely and specific feedback that boosts their self-efficacy.

Formative assessment has a significant effect on self-efficacy, which can be observed in the following: Firstly, through formative assessment, students are allowed to see where they are standing and what needs to be done next to make progress, which helps them increase their sense of achievement. Secondly, it focuses on process-oriented assessment, and allows students to take part in self-assessment and peer assessment, giving them chances to experience other forms of learning. Thirdly, teacher feedback in formative assessment and peer assessment can be seen as a verbal reinforcement which is highly efficient at increasing students self-efficacy. Lastly, formative assessment not only creates a healthy learning atmosphere but also enhances the emotional conditions of the learners and thus reinforces their self-efficacy. This multi-dimensional mechanism is why formative assessment can be considered an effective method of helping improve self-efficacy of students in sports.

## **3. The Mechanism by Which Formative Assessment Influences Self-Efficacy**

### **3.1 The Pathway through Which the Feedback Mechanism Influences Students' Sports Self-Efficacy**

The role of formative assessment feedback mechanisms in shaping the sports confidence of students is expressed in diverse ways. First, formative assessment offers prompt and clear feedback to students which allow them to comprehend their performance and development in sports skill acquisition, a core of developing sports confidence. Students are able to identify their strong points and weak areas and they can work on improving them by doing so they will have more successful experiences in athletics. When it comes to the content of feedback,

formative assessment focuses on multidimensional assessment of mastery of skills, such as technical precision, enthusiasm to participate, team working skills, and rates of progress. Such multidirectional strategy enables students to evaluate their performance based on different aspects thus reducing the harmful impacts of achievement-focused assessments. It has been found out that technical feedback in detail assists students to address mistakes more quickly, improve skills, and boost confidence. Concerning timing, formative assessment puts emphasis on instant feedback at the point of learning instead of end-of-semester summative evaluation. Feedback in real time can help students modify their approaches, fix wrong actions and stop making mistakes before the latter become habitual<sup>[4]</sup>.

### **3.2 The Promoting Effect of Processual Characteristics on Students' Exercise Persistence**

The formative assessment is process-oriented, which greatly improves the exercise persistence among students. Process evaluation focuses on the continual dynamic observation and feedback of the learning process instead of limiting it to the summative outcome assessment. Such an evaluation method is highly effective in increasing students self-efficacy in physical activity, hence enhancing the exercise persistence.

The research has found out that formative assessment adoption is highly effective in improving the level of adherence to exercises among students. The study on middle school students showed that the weekly exercise rate went up more than 25 percent due to mediation of self-management. This change is due mainly to the multidimensionality of formative assessment that incorporates various goals such as motor skills acquisition, physical health monitoring as well as the development of emotional attitudes.

### **3.3 The Role of Diversified Approaches in Shaping Students' Understanding of Motor Skills**

The impact of diversified formative evaluation strategies on student knowledge of motor skills is largely illustrated by the creation of a multidimensional, multi-stakeholder, and multi-method evaluation framework. The solution to this problem is to overcome the

shortcomings of conventional single-assessment systems by addressing the overall performance and development of physical education in students. Formative assessment involves the continuous assessment, documentation and reflection on the learning process, and offers a holistic measure of the students motor skill cognition via various methodologies that include various aspects including mastery of skills and development of physical fitness<sup>[5]</sup>.

When it comes to the evaluation subjects, the conventional teacher-centered assessment system is substituted with a cooperative system that includes self-assessment of students, peer assessment, and parental involvement. The students are no longer viewed as evaluated subjects but as evaluation participants because they are now able to view their athletic abilities in various angles and come up with a more holistic and non-biased self-conception. As an illustration, in physical education lessons, students acquire multidimensional knowledge of their athletic potential via self-evaluation and peer rating.

With regard to evaluation methodology, a holistic approach involves both formative and summative assessments, quantitative and qualitative assessments, and conventional testing approaches as well as contemporary technology-based means. With the use of smart devices to gather information on physical performance and integration of different qualitative measurement tools an integrated evaluation structure is created, which allows students to perceive their sports performance in a variety of ways and gain a multidimensional view.

## **4. Practical Strategies for Promoting Self-Efficacy through Formative Assessment in University Physical Education Teaching**

### **4.1 Specific Implementation Methods for Formative Assessment**

The use of formative assessment in college physical education instruction may be conducted in diverse ways, mainly, by designing formative learning units, setting up evaluation criteria, applying a variety of combined assessment methods, personalized assessments, and self-assessment of students. Practically, teachers need to come up with proper formative assessment plans that are specific to the goals of teaching and the nature of students.

The application of formative assessment in basketball instruction generally includes these steps: Firstly, establish learning goals by indicating major fundamental basketball techniques and tactical combinations that students should be able to perform; secondly, create assessment criteria according to each goal; thirdly, gather feedback using verbal and written input throughout the learning process; fourthly, interpret feedback to determine the strengths, weaknesses, and areas of improvement of the students; lastly, give specific suggestions depending on the individual needs of the student. Such an example would be that during teaching of passing and cutting combinations, teachers may use staged defensive practices- starting with no defense then progressing to light defense thereafter heavy defense and they can utilize quantitative measures like tactical success rate and error rate as performance indicators.

#### **4.2 Differences in Application and Effects across Different Sports Disciplines**

The use of formative assessment also differs greatly between sport disciplines, and its variations can be seen in the ways of evaluation, assessment content, evaluation results, and their influence on sports self-efficacy of the students. Considering the different features, skills, and participation methods in different sports, customized formative assessment plans need to be used to obtain the best results of teaching<sup>[6]</sup>.

When it comes to ball sports like basketball or soccer, formative assessment is usually centered on assessing teamwork, tactical understanding, and spontaneity. The sports are collectively and competitively oriented by nature, and assessments may also be made on how accurate the technical actions are, the rationality of the tactics used, the coordination of the teams and the choices made in the course of a game. Peer evaluation within groups, teacher observation and documentation, analysis of competitive performance, are some of the most common formative assessment strategies.

#### **4.3 Issues during Implementation and Optimization Recommendations**

In university physical education, the introduction of formative assessment has a variety of difficulties that need to be optimized in the philosophy of evaluation, methodologies, stakeholders, and technology. The existing practices have mostly shown such problems as

few assessment approaches, the absence of a certain assessment material, limited assessment participants, unclear standards, and poor feedback systems. The issues are especially acute in the context of university physical education.

In order to solve these mentioned problems, there could be optimized in the following directions: Diversified evaluation techniques are one of the effective tools that help improve the efficiency of formative assessment. Physical education teaching in universities needs to use various types of evaluation, including classroom performance evaluation, experimental operation evaluation, and evaluation of assigned tasks. This refers to more specifically measuring the involvement of students in class, posing questions and making answers, and their engagement in group discussions; assessing their ability to perform sports experiments and write experimental reports; and assessing the quality of completing assignments, methods of solving problems, and innovative thinking of students.

The emphasis on competence evaluation and development of general qualities of students can be considered as an essential trend of formative assessment optimization. The system of evaluation of the university physical education must focus more on measuring the abilities of students instead of their learning knowledge. The goal of physical education, in terms of education, is to develop the scientific literacy and innovative capacities of students, which means that evaluation material must be adjusted accordingly. Objectivity in formative evaluation can be improved through multi-stakeholder participation. Physical education at the university level should promote various forms of assessment such as self-assessment by teachers, peer assessment among students, and self-assessment by students.

#### **5. Conclusion**

The research examines how formative assessment in college physical education affects the sports self-efficacy of students. The results indicate that formative assessment has an impact on students sports self efficacy by means of its feedback mechanism, process oriented nature and diversified methods. Concerning feedback mechanism, immediate, precise and detailed feedback assists students to gain a sense of self-awareness and improves their confidence in sports. In case of process-oriented properties,

constant dynamic monitoring and feedback promote sports persistence, and form long-term habits. Speaking about diversified approaches, a multi-subject, multi-dimensional, and multi-method evaluation system is used to develop a holistic view of students of their athletic abilities.

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