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# Formative Assessment as the Path to a Higher Quality of Knowledge

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**Abstract:** Formative assessment of students' knowledge is seen as the bridge between the learning and teaching process. It mainly involves providing feedback and developing the student's ability to self-evaluate. In essence, the teacher shifts from the role of knowledge provider to the role of a guide through the learning process. Formative assessment increases the quality of knowledge, impacts the students' involvement in the learning process, and encourages them to be responsible for their own knowledge and learning. It is indirectly already a part of the teaching process of many Slovenian elementary schools that provide education in line with the national education programme, whereas at schools that offer *The International Baccalaureate* (IB) international education programme, students can only formally be graded after prior formative assessment. The article discusses the discrepancies in understanding the importance of formative assessment in two established education programmes. In the international education programme, it serves as a valid basis for grading and is an integral part of the final grade, while in the national education programme, formative assessment is considered an activity parallel to knowledge assessment, which, according to the rules, should not be considered when grading. The final grade under the national education programme is only a snapshot of the student's knowledge at that moment. It does not allow taking into account the student's performance in partial knowledge assessments, which deprives children and parents of applicative and useful feedback about the student's knowledge or their progress. Sophisticated teaching methods, such as individualization, differentiation, and personalization, are considered quality tools of formative assessment as they encourage comprehensive learning and critical thinking, motivate curiosity and imagination, as well as strengthen the student's ability to connect knowledge from various fields.

**Keywords:** Formative Assessment, Quality Knowledge, Evaluation of Student Progress, Feedback

## 1. Introduction

Quality learning and teaching demand much more than only frontal instruction. Children of contemporary generations are born into modern technology. Although having excellent access to information, they often do not know how to efficiently use, make sense of, connect, or enhance it. While we commonly assume that their multitasking ability is well-developed, it seems that their attention span is weak. This should be considered when planning lessons and teaching.

The core of quality teaching is a teacher who is aware and understands that a student and not a thing, e.g., a computer, nor someone else, e.g., the teacher, is at the centre of teaching. It is the student who we motivate to be active throughout the lesson. The lesson must be tailored to the student; however, not only in the sense of individualization or differentiation – the aim is to enhance it into what education experts call personalization. Formative assessment can play an important part in this. Formative assessments are ongoing assessments, observations, summaries, and reviews that inform teacher instruction and provide students feedback on a daily basis (Fisher and Frey, 2007) [11]. Greenstein (2010) [10] claims that formative assessment emphasizes learning outcomes, makes goals that are transparent to the student, provides clear assessment criteria and especially closes the gap between what students know and desire about his/her learning outcomes.

When it comes to formative assessment, it is not only the teacher who is trying to achieve learning objectives - students themselves must make sense of the content being taught and set goals for themselves within individual units, while the teacher follows this process and provides suitable guidance. The teacher is not abandoning their mentorship role. The point is to perform their teaching role by didactically and thoughtfully implementing various didactic strategies that significantly promote quality learning for all students. Both components act reciprocally and make the most sense when utilized thoughtfully. In this paper, which is based on the presentation prepared for an expert meeting on formative assessment in February of 2020[1], we examine formative assessment as a process that includes clear intentions and success criteria, efficient student support, meaningful student feedback, student self-assessment, and peer collaboration.

## 2. Differentiation, Individualization, Personalization

The term *differentiation of teaching* has become a constant in modern education. The inclusive attitude of today's society is all but monotonous, and in its diversity, each student is treated as a unique individual. This means that differences such as familial, social, and economic factors, cultural background, gender, interests, etc. challenge the teacher to use didactic strategies that strengthen the student's skills and talents, while at the same time encourage progress in their weaker areas through various activities. It is an organizational measure that serves the function of individualization as a didactic principle. We talk about internal, external, and flexible differentiation of teaching Strmčnik [8]. While curriculum sets out programme-wide objectives at the school subject level, these objectives can be tailored at the institutional and individual levels. This is not the case when it comes to standards of knowledge and related grading. Fani Nolimal [5] in her paper *Personalizacija vzgojno-izobraževalnega dela kot odgovor na izzive šolstva* (*Personalization of Educational Work as an Answer to the Educational System's Challenges)* indicates that the teacher must suitably modify the learning environment (activities, learning dialogue), teaching content (materials, learning questions, teaching method/level of thinking, question types, interaction type, pace, presentation, and illustration type), and learning products/results (achievement/result types, deadline, evaluation type).

Specialist literature Strmčnik [8] defines *individualization of teaching* as a didactic principle, which entails modifying pace, teaching methods, and difficulty level of lessons in accordance with the needs of an individual student. Therefore, learning objectives and content vary with regard to the student's ability, while at the same time individualization allows students to progress through learning materials and techniques at a different pace according to their needs and abilities. This allows some students to focus on certain topics for longer, while others may skip them entirely. Therefore, individualization does not solely apply to learning differences on the group level but also on the individual level. The term differentiation of teaching may also denote a process characteristic or lesson adjustment, while individualization is considered more as a quality characteristic of the learning process. But both are based on the assumption that students between groups differ more or less in terms of how receptive to learning are they and how complex the content they learn is. There is also a tendency in internal differentiation and individualization to maintain naturally heterogeneous classes and sections (Blažič et al. 2003, pg. 216) [1].

This leads to personalization, which is not only an intersection but a union of the aforementioned mindsets. The latter ties to teaching, which is based on students' needs and is tailored to their learning selection and specific interests. As a concept, personalization originates from a space that brings learning to the forefront, while lessons and teaching are understood as a "service" to learning; the student is responsible for their own learning, while the teacher more or less assists them. Of course, this means that learning objectives, content, methods, and pace may differ in a fully personalized environment. The essence of a personalized lesson is to tailor the educational system (lessons) to the student and not vice versa.

Pevec [6] claims that personalization includes common objectives to ensure high quality of lessons: it allows for raising standards in a manner where teaching and learning are focused on the abilities and interests of students as well as on removing the obstacles for learning. As previously mentioned, the student is placed at the centre of learning; this is done by including them in the planning of learning (they must be aware of the reasons for learning), encouraging their personal development (planning of education goals – self-realization, self-actualization, etc.), strengthening their development of learning abilities, connecting their creativity and social skills, as well as by linking the learning method with the needs of each individual student. This is how learners develop problem-solving skills, connect knowledge with authentic problems, combine knowledge from various fields and, most importantly, strengthen their confidence and learning momentum.

## 3. Formative Assessment – Formative Evaluation

Formative assessment of a student, their learning process, and the acquisition of knowledge are therefore about:

1) the process of formative assessment and evaluation

1 The expert meeting titled Naj formativno spremljanje v osnovni šoli zavzame mesto ocenjevanja? (Should Formative Assessment Replace Grading in Elementary School?) took place on 12 February 2020 on the premises of the Faculty of Arts, University of Ljubljana [4]. It was organized by the Association of Slovenian Educationalists in collaboration with the Department of Educational Sciences at the University of Ljubljana. The article was originally published in Journal of Contemporary Educational Studies (Vol. 72, 138, No. 2/2021, pp. 48-57, ISSN: 00380474).

of knowledge that includes determining prior knowledge and clarifying learning intentions by planning personal learning objectives in relation to common objectives;
2) planning didactic and learning strategies for successful and efficient achievement of learning objectives;
3) collecting evidence about achieving learning objectives; and
4) (self)evaluation of learning performance, the quality of students' knowledge and, consequently, the performance of the teacher's teaching.

Literature describes formative assessment as the "bridge between teaching and learning" and highlights five key strategies:

i. clarifying, participating in defining and understanding learning intentions and success criteria,
ii. engineering effective classroom activities that elicit evidence of learning,
iii. providing feedback to students,
iv. activating students as learning resources for one another, and
v. activating students as owners of their own learning.

The discrepancy between summative grading and formative assessment and evaluation is wide. These terms should be used with caution. While the terms are related, they do not bear the same meaning. The process of formative evaluation is an assessment of the entire learning process, at the end of which the student may be or is graded. Summative grading is still a part of the process; however, the process is documented, and the potential final grade is evidently the result of the ongoing work during this process. The student is provided ongoing preparation and given effective feedback on how their acquisition of knowledge is progressing. In simple terms, this means that the student cannot expect to get the highest grade if they know that they did not meet objectives during the process in line with how they set them, together with the teacher, or how teacher clarified the objectives to the student if they were unable to set them themselves.

According to formative assessment expert, Dylan Wiliam [9], there are five strategies that are core to successful formative assessment practice in the classroom (Wiliam, 2018):

1. Clarifying, sharing, and understanding learning intentions and criteria for success;
2. Engineering effective classroom discussions, activities, and learning tasks that elicit evidence of learning;
3. Providing feedback that moves learning forward;
4. Activating learners as instructional resources for one another; and
5. Activating learners as owners of their own learning.

The student's self-initiative or drive is also expressed in the formative assessment process [7]. The student's drive is their ability to plan their progress in the learning process. The teacher's role in this process is to sensibly lead and guide the student. A common mistake of educationalists is the lack of trust in the children's ideas. The teacher's inflexibility frequently limits the children's creativity, which is the most important part of the learning process. The burning question, whether formative assessment can actually replace grading, in and of itself gives an understandable and pertinent negative answer, as formative assessment (similar to learning) is a process, while grading is a final, summative state, a thing in a moment (Figure 1). Demonstration of knowledge is, therefore, the final point that happens in a narrow time frame, which means that the teacher leads the student to knowledge, directs them through the information, and guides them on what to do with it. The teacher builds knowledge together with the student; the teacher teaches the student. For the learning to be efficient, both actors need to assess knowledge, determine the progress, and check if learning objectives are clear on an ongoing basis. The entire process that leads to the evaluation is formative assessment.


***Figure 1.*** *The process of formative assessment.*

Evaluation of knowledge, which also plays a selective role, is called normative evaluation by some experts (Brodnik 2017, pg. 18) [2]. Such evaluation is easier to measure, wherein the main focus is on the information, to what extent did the student correctly memorize the learning content and how. Lower levels of knowledge are evaluated in most cases. Evaluation of content knowledge is emphasized, while process knowledge is put in the background. Thresholds between grades, objectivity, and the option to place results on a bell curve are the dominant factors. The concept of evaluating knowledge and learning, which plays a formative role, is based on monitoring the acquisition of knowledge by students, and at the same time, has an educational purpose with the aim of improving learning and, consequently, knowledge. We are assessing the student, their progress, learning process, and knowledge acquisition. Higher cognitive levels of knowledge require learning through understanding (ibid.), which also strengthens the permanence of the acquired knowledge.

Formative assessment is in the hands of the teacher. It is the teacher who must be aware of formative assessment's advantages. It is important that the pedagogical head (headmaster/headmistress) provides autonomy to the teacher when it comes to formative assessment and at the same time

cautions and guides the teacher through the process, as well as provides objective criticism about their work. The headmaster/headmistress can lead the teacher by using questions such as: *Are the learning intentions and success criteria clear? In which cases is it important for the teacher to be heard during a lesson? What are learning foundations and lesson objectives for the teacher? Is the teacher capable of leading the child using efficient questions or are they condescending and only teach the child? Is the teacher guiding the student in such manner that the student is active? Is the teacher looking for an answer to the question or is the student only listening and repeating after the teacher?* There is only one guiding principle: *The student is at the centre of the process.*

# 4. Formative Assessment and Evaluation in the International Education Programme

The process from the international education programme *The International Baccalaureate* (hereinafter: IB)[2] cannot be simply transposed into the national elementary school education programme, as formative assessment and evaluation are prescribed under the IB education programme, and the final grade is exclusively the result of some sort of partial grades. According to the first paragraph of Article 3 of the *Rules on knowledge assessment and grading and students' progress to a higher class standing in elementary schools* (2013) [12], the national elementary school education programme does not allow teachers to grade knowledge assessments in such a manner as to directly affect the final grade. Such assessments only serve to collect information on how the student is achieving the objectives or standards of knowledge set in curricula. Knowledge assessment is therefore prescribed, while grading of it is prohibited. Through knowledge assessments, we may determine that the student has progressed well, but we cannot take that into account when giving them their final grade. The final grade is only a snapshot of a moment and prohibits the inclusion of partial evaluations, which provide applicative and useful feedback about the child's knowledge to the child and their parents. We should ask ourselves if formative assessment and summative grading are two opposing concepts or two mindsets that support each other. The arrows below show the current situation in the national education programme. The arrows are pointed differently when it comes to the international education programme. *Formative assessment* is the uphill path, the support that helps the student on their way to the objective, while the grade is at the top (*summative*). The main issue of the national education programme is that the Rules do not permit taking formative assessment of the student's progress into account, which prevents the teacher from providing additional motivation to the student in the course of the knowledge acquisition process; we believe this contradicts the goals of elementary school education. The problem with such grading is that the grade is only a snapshot of a moment and not a reflection of actual knowledge. Thus, student receives the incorrect message that only the result is important to get a good grade, not the path. This also devalues knowledge. The student accepts that only knowledge, demonstrated in a particular moment (the day of an oral or written exam), counts and not their progress. Below is an example of the aforementioned issue. A student's knowledge was assessed as good (grade 3 or UK grade equivalent C) on a written knowledge assessment at the end of the year; we are not permitted to take this into account when grading. One week later, just before the end of the school year, the same student's knowledge was graded insufficient (grade 1 or UK grade equivalent F) on an oral exam. The lack of time prevents the teacher from grading the student again; therefore, a negative grade from the oral exam may lead to a poorer final grade, wherein the teacher knows that the student had a bad day that they felt a little off and that they did not give their all. Is it appropriate for the teacher to go against the rules (and by doing so, help the student avoid the remedial exam) and take the positive grade from the knowledge assessment into account, knowing that this is the actual state of the student's knowledge?

The ideal solution would be to combine partial grades (formative assessment) from the international education programme and the snapshot of the moment (grading) from the national education programme.

### *4.1. Feedback*

The key element of the child's quality learning is getting feedback, meaning every piece of information given to the student about their work with the intention of improving their learning and knowledge. *How does a child receive feedback? Must it always come from a teacher? Can the student find it themselves or acquire it from a peer? Are these methods of acquiring feedback and quality information optimal and efficient in a given situation?*

Such questions may serve as useful tools when analysing an individual's work. Of course, sometimes it is the most effective for the teacher to provide the answer, while other times it is best if a classmate gives a response. It is important that the teacher, during lessons, provides space for all these aspects, notices them, and predicts the learner's self-assessment. Feedback should be sensitive, timely, and clear. Feedback should always be provided using the "sandwich" method; it should not include judgments, but concrete positive observations, concrete negative observations, negative impact, wishes and recommendations, and positive changes. It must be described to the student what specifically did they do, what should they change, and what positive changes will happen if they follow the suggestions (Brodink 2017, pg. 19). A child can also receive feedback from a peer. We call this form of providing feedback "critical friendship" (ibid.) and its purpose is for the student to get an insight into the quality of their learning and knowledge. It is not always

2 The IB international elementary school education programme is implemented at the Danila Kumar Elementary School in Ljubljana.

suitable for the teacher to be dominant when it comes to providing feedback. This is not important only from the perspective of building knowledge but also in terms of developing social skills, peer cooperation, and evaluation. Evaluation gives the student an insight into the level at which they are achieving learning objectives and enables them to plan further improvements to their learning, while it also allows the teacher to reflect on effective and useful support they provide to students on the path to quality learning.

### *4.2. Climbing Mountain Tops Should Be Done Thoughtfully*

This can be illustrated by a simple metaphor derived from a straightforward concrete example.

The objective of a P. E. lesson is to climb to the top of a nearby mountain. Of course, the option to carry the students one by one to the top is unreasonable and foolish. The other option is to drive them to the top in a van which allows all to climb to the top without any effort. Children would reach the top in both scenarios; however, they would only feel short-term satisfaction, as they would not put any effort into their success.

The next alternative option is to talk to the students about how we must climb the mountain and how will we achieve that. We ask the students for their suggestions. Together we check if we have all the required equipment and if conditions to make the climb are suitable. The next step is to start climbing with the group of children and at the same time consider internal differentiation, which means that we give additional tasks to children with more energy, such as identifying plants along the path or calculating the incline. A step further is for the students themselves to suggest what they can explore along the path. One of the many options, available to the teacher, is also external differentiation. If the group is large enough to include two teachers, the faster teacher takes one group of students on the more challenging path, while the other teacher leads the group of less physically fit children on the less demanding path. The latter group may not even get to the top. Perhaps the groups agree to meet at a halfway point, wherein the faster group goes all the way to the top and climbs down to the meeting point on the other side, while the weaker group gets to the meeting point using the easier path.

The teacher has many different options at their disposal. The path to the top of the mountain that students will take depends on the teacher's choice, autonomy, and will. The only thing that the teacher must truly master is to know what they want. To define the basic learning objective very thoroughly. Is the objective to get to the top (maybe even using a vehicle); is the objective that children reach the top with help; or is the objective that the children learn how to climb to the top of various mountains, even if they perhaps they do not reach it this time?

"In educational theory, such mountain climbing is called a *five-stage model of formative assessment,* developed by the National Education Institute of the Republic of Slovenia within the framework of the *EUfolio* project, which outlines the following stages: *determining prior knowledge* (What do I already know about the learning content?), *clarifying learning intentions and definition of success criteria* (What do I want to achieve?), *planning learning strategies* (How can I achieve my goal?), *collecting evidence* (How will I prove that I have achieved my goals?), and *(self)evaluation* (What have I learned)." (Holcar 2017, pg. 5) [3].

Climbing mountain tops and acquiring knowledge are indicators of how efficiently the teacher set out the objectives that they will pursue with the students during that lesson. In addition to all of that, the teacher must reflect on the impact that the assessment has on their teaching regularly and on an ongoing basis. During the climb to the top, we must regularly check if the children are able to reach the top, whether they are perhaps pushing themselves beyond their abilities or are merely walking leisurely along the path. Motivating the latter presents a special challenge, where it is sensible to drive efficient learning through the use of modern technology. Task children with identifying new types of trees using modern apps on their mobile phones or with using the phone's calculator function to calculate the speed with which they climb. Children will probably forget if the tree they identified is a cornel or a beech tree, but they will know how and where to find the information as well as memorize the plant's characteristics. Allow children to learn in their own way and show them that tablets and mobile phones can also be excellent learning tools. After all, they use them every day. Let them be used for the benefit of the child. In this way, they are becoming open to the world around them, are enhancing their general knowledge of the world, and are expanding their knowledge and skillset. Children are very curious beings; unfortunately, we frequently impede this curiosity through elementary school education, while at the same time, senseless regulations limit proactive and exceptional teachers.

An attendee of the expert meeting mentioned in the Introduction used the following comparison to compare the effectiveness of the first and second method as well as the use of modern methods, forms, and technology in the classroom: "A child may climb to the top even in old, worn-out slippers. They may even be the first at the top, but one must ask oneself how many more blisters they will get in comparison to better-equipped peers." Through formative assessment, we provide modern equipment to students, while they are still required to put in the effort to reach the top but with the teacher's support.

## 5. Conclusion

When planning strategies for achieving objectives or on the path to achieving standards of knowledge, the student and the teacher are asking themselves what the learning objective is, which path the student will take. This depends on the student's prior knowledge and motivation, at which point is the student currently on their way to achieving the set learning objective, and how will they reach this goal. The teacher plays the role of the mentor, responsible for leading the learning process. We can safely state that formative assessment improves the student's learning strategies and the

teacher's teaching strategies. Formative assessment increases the quality of knowledge, impacts the students' involvement in the learning process, and encourages them to be responsible for their own knowledge and learning.

It will certainly be worth thinking about what formative assessment in the student's achievement of goals means for the permanence of memorized knowledge, interdisciplinary integration, and the use of knowledge in other areas.

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