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## **PREFERRED ASSESSMENT INSTRUMENTS IN TIMES OF THE PANDEMIC. THE TEACHERS' PERSPECTIVE AT CHILEAN VULNERABLE SCHOOLS**

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**Abstract:** The pandemic has significantly affected all areas of society and education has been no exception. Teachers have had to adapt their practices to online environments and hybrid teaching systems. In this context, the evaluation of learning appears as a significant challenge for teachers at all levels. This study seeks to determine the most used assessment instruments for diagnostic, formative, and summative purposes at vulnerable schools. Additionally, it intends to determine the students' degree of participation in the learning assessment process. The study concludes that teachers use written tests with open questions for all three assessment processes. Multiple-choice items, oral assessment, group work, project work and the project work serve at least two assessment purposes. The student's participation in the evaluation process is moderate and takes mainly the form of self-assessment

**Keywords:** assessment, instruments, pandemic.

## INTRODUCTION

The pandemic has hit hard all areas of human development globally. We have witnessed the health and economic crisis, from which Chile and Education have not been exempt. This is how recent reports and studies by ECLAC (2020) and UNESCO (2020) account for the deterioration in learning and the risks of widening the existing gap between students from different realities, thus increasing inequality at all levels.

Within this context, we wanted to investigate how some educational centres in Chile have faced the evaluation processes, especially during the 2020-2021 health crisis, which forced schools and colleges to develop pedagogical processes in virtual environments. This situation has been a challenge for teachers and technical teams.

To carry out this study, we applied an online survey to teachers of municipal and subsidised basic schools (all of them receive state resources), located in the central zone of Chile. These establishments present as fundamental characteristics high vulnerability rates (over 70%). The sample consisted of 82 teachers from various educational levels and from various disciplinary areas (Mathematics, Language, History, Science, among others), of which more than 50% has between 5 and 15 years of experience.

## CONTEXT

For the present study, we worked with schools in three regions of central Chile: Metropolitan Region, O'Higgins Region, Maule Region, whose teachers were invited to answer an online survey that allowed collecting data about the most used evaluation instruments and the degree of students' involvement in the assessment processes.

12 was the number of participating schools, of which 10 had only Basic Education and 2 also had Secondary Education. The average vulnerability index of these institutions reached 70%. Most of them have a municipal dependency. Three of the schools corresponded to the private-subsidised type. The educational establishments with which we worked are all urban and have enrolments ranging from 300 to 900 students.

## THE PARTICIPATING EDUCATIONAL CENTRES WERE

(Table)

## RESEARCH OBJECTIVES AND QUESTIONS

One of the main challenges that online teaching conveys is the evaluation of learning. What evaluation instruments have been the most used in this context? Among them, which ones are used for diagnostic, formative,

Establishment	Region	Agency
Escuela Municipal República de Israel	Metropolitan	Municipal
Colegio Mistral	O' Higgins	Subsidised
Escuela Rafael Valentín Valdivieso	Metropolitan	Municipal
Escuela Brasil	Maule	Municipal
Escuela Padre Alberto Hurtado	Maule	Municipal
Escuela Andes del Sur	Metropolitan	Municipal
Escuela Ignacio Carrera Pinto	O' Higgins	Municipal
Liceo José Gregorio Argomedo	O' Higgins	Subsidised
Colegio Presidente Alessandri	Metropolitan	Subsidised
Colegio José Bernardo Suarez	Metropolitan	Municipal
Escuela Marcela Paz	Metropolitan	Municipal
Escuela Poeta de Chile	Metropolitan	Municipal

and summative purposes? What is the degree of students' participation in the assessment processes?

The following objectives guide the present investigation.

- To identify the assessment instruments most used for diagnostic purposes at vulnerable schools.
- To identify the assessment instruments most used for formative purposes at vulnerable schools.
- To identify the assessment instruments most used for summative purposes at vulnerable schools.
- To determine the degree and form of participation students have in the assessment of their learning processes.

## LITERATURE REVIEW

We will now review some relevant contributions regarding the most important topics related to the current research.

## VULNERABILITY

Vulnerability can be understood as the situation of access of groups of people, households, and individuals to both tangible

and intangible assets, and that can suffer serious changes in their standard of living, as a result of circumstances such as unemployment and the lack or reduction of income, a situation that in the current pandemic context has increased. Wisner, Blaikie, Cannon and Davis (2004) define vulnerability as “the characteristics of a person or group and their situation, which influence their ability to anticipate, deal with, resist and recover from the impact of a threat.” (2004:11)

In the specific case of children, the OECD (2019) considers that “child vulnerability is the result of the interaction of a variety of individual and environmental factors that are dynamically compounded over time. The types and degrees of child vulnerability vary as these factors change and evolve.” (OECD 2019: 16) For this international organisation, child vulnerability is affected by both individual and environmental factors. Among the former are disabilities, mental health difficulties, an immigrant background, abuse and care outside the home. Environmental factors consider material deprivation, the health and sanitary behaviour of the parents, their educational level, the level of violence to which children have been exposed, family

stress, access to early schooling, the level of primary and secondary education reached and the neighbourhood.

Unfortunately, vulnerability also affects school results negatively, as described by Gómez and Rivas

The results indicate that the most vulnerable students obtain significantly lower results than those with the greatest resources. Although in some countries the gap has decreased in recent years, this difference shows the high prevailing inequality in Latin American educational systems. (Gómez and Rivas 2017: 217)

Despite this reality, the authors maintain that there are students who manage to get ahead by overcoming their difficulties, reaching learning equal to or even higher than that of other children from non-vulnerable contexts. These students are called resilient students because they thrive on protective factors like family and school.

Regarding the role of teachers with vulnerable students, Barrios and Garay (2020) propose a mentoring system that facilitates learning, in the understanding that lasting learning is achieved when students are exposed to concepts and experiences in a highly participatory and interactive way. In the authors' words.

Mentor teachers must base their practice on closeness, trust, and reciprocity. Your action must be flexible, executed in different spaces and in a diversified way, helping your students not only to identify their missing skills but also guiding them to overcome their weaknesses. (Barrios and Garay 2020: 15)

In short, we see how vulnerability not only refers to material deficiencies but also to a series of emotional and affective factors that intersect with others of a social, personal, and cultural nature. Students in situations of vulnerability will require support and accompaniment from their teachers,

throughout their entire school stage, in such a way that they acquire not only the necessary knowledge and information but also the tools to complete their studies and be able to access the world of work

## LEARNING

Learning is one of the most studied educational topics due to its importance in the development of people and therefore of society. Its analysis has been approached from different perspectives through pedagogy, psychology, sociology, and anthropology, among others. Thus, in this section, we will review some relevant contributions to our object of study.

In this quest to define and understand learning, Harel and Koichu review a series of previous definitions to propose "learning as a multidimensional and multiphase change that occurs when individuals try to solve what they see as a problematic situation." (Harel and Koichu 2010: 122) The authors recognise the Piagetian root of their definition, highlighting its functionality in the understanding that it specifies what type of changes learning must demonstrate. They appreciate the openness that this definition offers to the question of how one learns through the interaction between ways of understanding and thinking. For Harel and Koichu (2010) this definition also suggests intellectual aspects and psychological needs that lead to the involvement and resolution of a problematic situation in a certain way. The authors highlight the methodological implications that their definition entails, where instruction must achieve the desired changes in all dimensions of learning.

Always within the scope of a functional definition of learning, De Houwer, Barnes-Holmes and Moors (2013) seek to make a contribution that overcomes certain shortcomings that, in their opinion, are presented by other definitions. They define

learning as “changes in the behaviour of an organism that are the result of regularities in the environment of that organism.” (De Houwer, Barnes-Holmes and Moors 2013: 638) Just as Harel and Koichu (2010) acknowledge Piaget’s ideas in their definition, De Houwer, Barnes-Holmes and Moors claim to have based their definition on works by Skinner. They support their proposal in three essential components, changes in the behaviour of an organism, a regularity in the organism’s environment, and a cause-effect relationship between the organism and its environment. The notion of change is shared by both definitions and it is possible to establish some similarity between the concepts of a problem situation and the environment of the organism. However, the first definition seems to apply to human learning, while the second to the learning of any living being.

A more inclusive view regarding the definition of learning is presented by Barron et al. (2015). They recognise the difficulty and complexity involved in defining this process and that, despite the absence of a widely accepted and validated definition, each of them contributes its subspecialty, which facilitates the recognition of different approaches and the integration of the disciplines that study learning. According to these authors, the difficulty in defining learning has led many researchers not to try to explain different types of learning. In their view, the existing definitions approach learning from two different perspectives, one as behaviour change and the other as changes in the mechanisms that make behaviour changes possible. Barron et al. (2015) see a value in these definitions of a pragmatic cut at the experimental level. In their words

By appreciating the situational advantages of these different perspectives and by describing how the term is used in a specific context, learning scholars can minimize confusion within fields of study and

facilitate meaningful translation of learning studies between disciplines. (Barron et al. 2015:405)

In the opinion of these authors, all definitions have strengths, but also weaknesses. Thus, the definitions of learning explained as behaviour change would contribute to the mechanical understanding of learning and its evolutionary consequences, but would present limitations as they need to identify and measure the underlying physiological mechanisms of learning. The definitions of learning based on experience, on the other hand, strongly relate experience as a source of information for learning; however, there would be insufficient reasons to limit learning to situations where the nature of the experience is known. Doing so, in the authors’ opinion, “would lead to serious errors of interpretation and would inhibit transdisciplinary learning syntheses, fragmenting the discussion of clearly related phenomena.” (2015: 406) This is how Barron et al. (2015) propose an integrative perspective of learning because no definition manages to serve well all the fields that study it. This is how each student of the subject will have to make known what he understands by learning and thus facilitate research and understanding between disciplines.

Synthesizing the contributions of this section, we can propose that learning is a complex process, which occurs in a given context, it requires a learner, faced with an experience to produce a change of knowledge or behaviour in that person.

## LEARNING ASSESSMENT

Having already had an approach to the concept of learning, we will go on to review some relevant concepts about its evaluation. In a study with primary and secondary school teachers, Gregori (1999) asks what it means to evaluate. Within the evaluation conceptions of the teachers appear the verification of the

work and the assimilation of the content of the class, the verification of what has been learned, the comparison of different levels of learning, having information about the understanding of what has been learned or the need to review and inform parents about their children's progress. All these conceptions denote the breadth, importance, and complexity of the evaluation of learning. Another important contribution is the identification of necessary attributes of an evaluative process that indicates that an evaluation must be coherent, shared, contextualised, continuous, criterial, dialogued, diversified, formative, comprehensive, integrated, integrative, and transparent. All of these criteria are undoubtedly valuable and relevant. Given the health situation experienced during this research, we consider that methodological and evaluative diversification acquires special relevance.

The types of evaluation that are related to why and what to evaluate are another relevant area of the subject under study. In this regard, Lecrecq and Cabrera (2014) make the following contribution by contrasting types of evaluation: formative versus sanctioning, normative versus criteria, and summative versus diagnostic. Let us delve a bit into this typology. The evaluation with a formative function, as the authors call it, is present throughout the educational process, "it allows to discover where and in what the learner has difficulties so that he discovers strategies that allow him to progress." (Lecrecq and Cabrera 2014:54) The aforementioned authors consider that this type of evaluation allows determining compliance with prerequisites, it can be self-administered and its frame of reference is criterial. The evaluation with a sanctioning function responds to external regulations, either by way of certification or selection.

The absolute reference criteria characterise the evaluation with criterial references, which are associated with the objectives to be achieved. Within this criterion-referenced evaluation modality, the minimum passing grade is established regardless of the rate of students who achieve it. On the other hand, the evaluation with normative reference favours questions with a high power of discrimination, presenting the results of an average student concerning their position within a reference group. The authors also point out that situations can arise where both approaches are used in a mixed way.

Evaluation with summative precision, as Lecrecq and Cabrera (2014) call it, synthesizes in a grade or level the learning of a determined period. Consequently, it does not apply after each learning activity. The evaluation with diagnostic precision seeks to identify strengths and weaknesses and does not necessarily result in a score.

We have learned about what it means to evaluate, its attributes, and the types of evaluation of our students' learning. Now we will proceed to identify some procedures and instruments that allow us to carry out evaluative processes. In this context, Mateo and Martínez (2008) divide the procedures into three types, traditional, mixed, and alternative. In the first type of evaluative procedure, the authors identify the objective tests, the written or essay tests would correspond to the mixed typology, while the use of the portfolio, the development of projects, and executions in a simulation context would correspond to the alternative systems. The authors do not seek to provide a list of innumerable types of procedure, but rather to emphasize the evaluation of learning over the evaluation of teaching. This is how Mateo and Martínez refer to it.



The emphasis of modern evaluation on teaching-learning processes has shifted from teaching to learning, understood in that broad sense to which we alluded earlier. What matters primarily is not how much the teacher teaches but what the student learns. (Mateo and Martínez 2008: 205)

We see how the authors propose what Perrenoud (2008) calls an evaluation at the service of students that seeks to be more formative and less selective. From a competency-based approach, Pimienta (2008) defines what is understood by evaluation techniques and instruments. A necessary conceptual precision. The author points out

We have determined to call the traditional technical concept the way, the way, or the method to evaluate the learning; whereas, to the instruments, the forms by which the information is collected, we will name resources or procedures. (Pimienta 2008: 52)

This author identifies five evaluation methods: observation, interview, survey, test, and portfolio, while the resources presented are structured and not structured guides, questionnaires and scales, exams, and analysis of projects or tasks. In addition, the guides are subdivided into observation, interview, self-evaluation, co-evaluation, and portfolio evaluation. Of this classification, both the self-evaluation and the interview are of special interest, since they give students some degree of participation in the process of evaluating their learning.

## **METHODOLOGY**

The present study is quantitative and descriptive. To fulfil the objectives already presented, we followed three methodological steps.

- Design of the data collection instrument
- Constitution of the sample
- Data processing and analysis

For this study, we chose a survey to collect the data for subsequent analysis. Within its validation process, it was subjected to the judgment of three evaluation experts and a pilot application to a small sample of informants who were not going to be part of the present investigation. Once the experts 'reports and the respondents' comments had been received, the instrument was adjusted and refined. It consists of a section with twenty-seven evaluation instruments, where the participants had to mark those they occupied; a second section to add some other instruments that did not appear in the list, but that they did use; the third section with degrees of efficiency per instrument, and a fourth and last section where they could specify the reasons that justified the efficiency or lack thereof of the three instruments used. Given the health situation, the survey was applied online using the Google Forms platform, which was available to volunteer informants for a period of three weeks.

Regarding the sample, it was made up of 82 subjects, teachers from different cycles and specialities that represented the twelve schools presented in the context section of the present study.

The data obtained, a product of the fieldwork, were processed in an Excel spreadsheet and the necessary graphics were generated to facilitate their description and visualization. The written responses were ordered by instrument and are presented in the data analysis section, written respecting the terms used by the respondents.

## **GENERAL RESULTS**

In this section, we will present the analysis of the data collected using the survey described in the previous section.

### **FREQUENCY OF ASSESSMENTS INSTRUMENTS USED FOR DIAGNOSTIC PURPOSES**

Twenty-two different instruments use the informants for diagnosing their students' prior learning. Regarding the most frequently used assessment tools for diagnostic processes, the three instruments that score the higher are written tests with the open question with 29 mentions, multiple-choice test with 23 mentions, and oral assessment with 15 mentions. Short answer-based written tests are referred by 11 teachers and direct observation by 10. All the other assessment tool scores are under 10. Figure 1 depicts this situation.

### **FREQUENCY OF ASSESSMENTS INSTRUMENTS USED FOR FORMATIVE PURPOSES**

Assessment instruments increase by seven new tools when compared to those used for diagnostic purposes. They are True or False items, completion, forum, class log, peer assessment, self-assessment, and exit ticket. Consequently, the informants report the use of 29 of them. Once again, written tests with open question score the higher with 16 references. They are followed by group work (14), oral assessment (13), mental maps (11), project work (11), rubrics (11), and application tests (10). All the other reported tools obtain less than ten mentions, as one may see in Figure 2.

### **FREQUENCY OF ASSESSMENTS INSTRUMENTS USED FOR SUMMATIVE PURPOSES**

The participant teachers report 27 different assessments instrument for summative purposes, two less than in the previous section. Unlike the other two types of evaluation, multiple-choice tests take the lead with 19 mentions, closely followed by group work. Open question-based written test, project work, and oral assessment obtain 16, 15, and

13 references respectively. One can visualise the frequency of use of all the evaluation tools in Figure 3.

### **STUDENTS' PARTICIPATION DEGREE IN THE ASSESSMENT PROCESS**

Figure 4 shows that 62, 2% of all informants consider that their students have a moderate degree of participation in the assessment process. 18, 3% of them regard the students' role as low. 15, 9% of the teacher inform that students have a high degree of participation, and only 3, 7% of them report no participation at all.

### **FORMS OF STUDENTS' PARTICIPATION IN THEIR ASSESSMENT PROCESS**

Most of the students' participation comes from self-assessment. 55 teachers inform that all their students conducted some sort of self-assessment. 20 state that their students evaluate each other (peer assessment). Standards development is another form of how students contribute to their learning assessment. This item scores 19 mentions. 18 informants report that their students' opinions have a certain specific weight when developing an assessment process. 15 teachers allow their learners to propose how they want to be assessed. Only three participants report students providing some feedback. Figure 5 illustrates this situation.

### **CONCLUSION**

The pandemic forced many changes in the ways teachers conduct the educational processes. Learning assessment became a challenge educators had to deal with. This fact justifies the need for studies that inquire about the assessment procedures in different realities. Vulnerable schools have even more difficult problems due to the fragility of their environments.



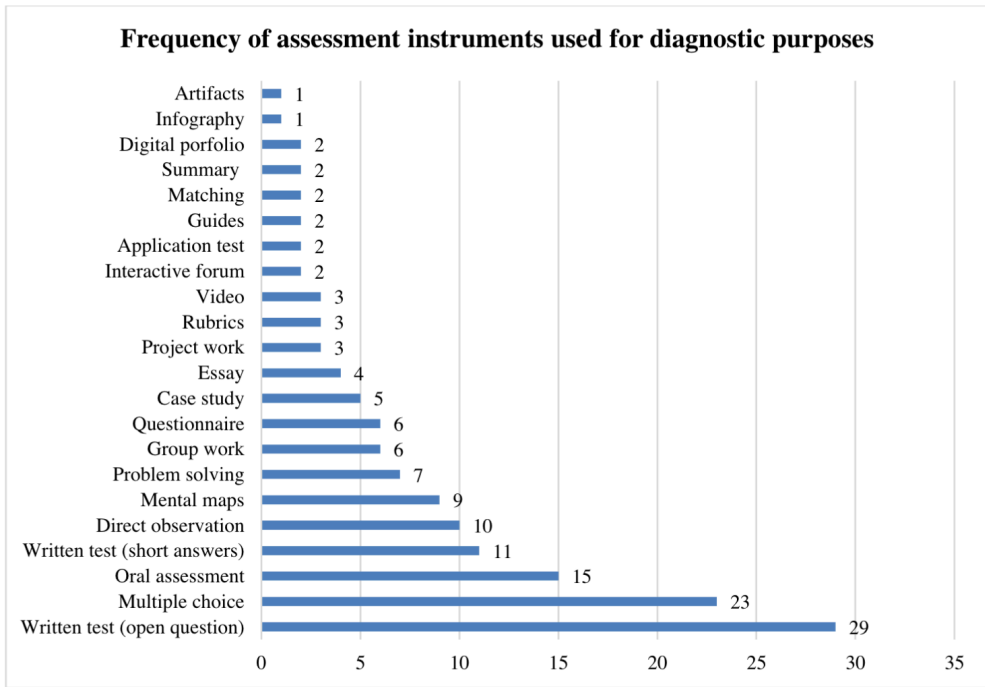


Figure 1. Graphic frequency of assessment instrument used for diagnostic purposes

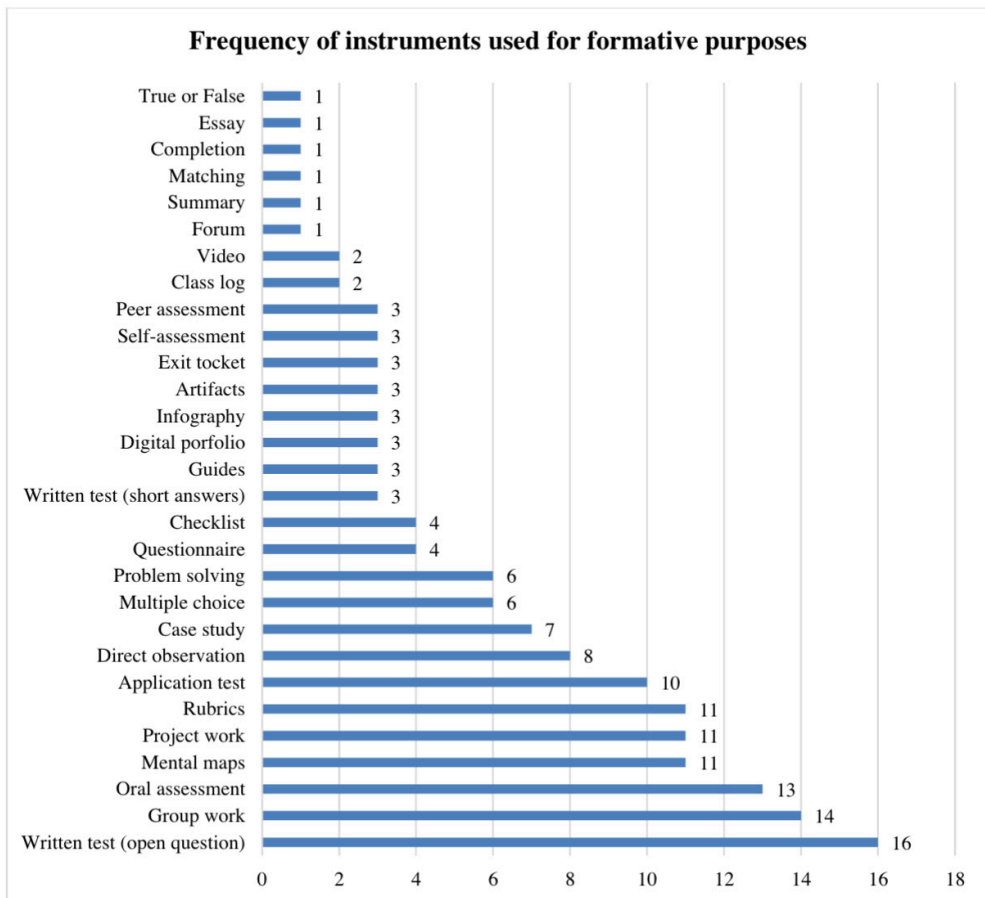


Figure 2. Graphic Frequency of assessment instruments used for formative purposes

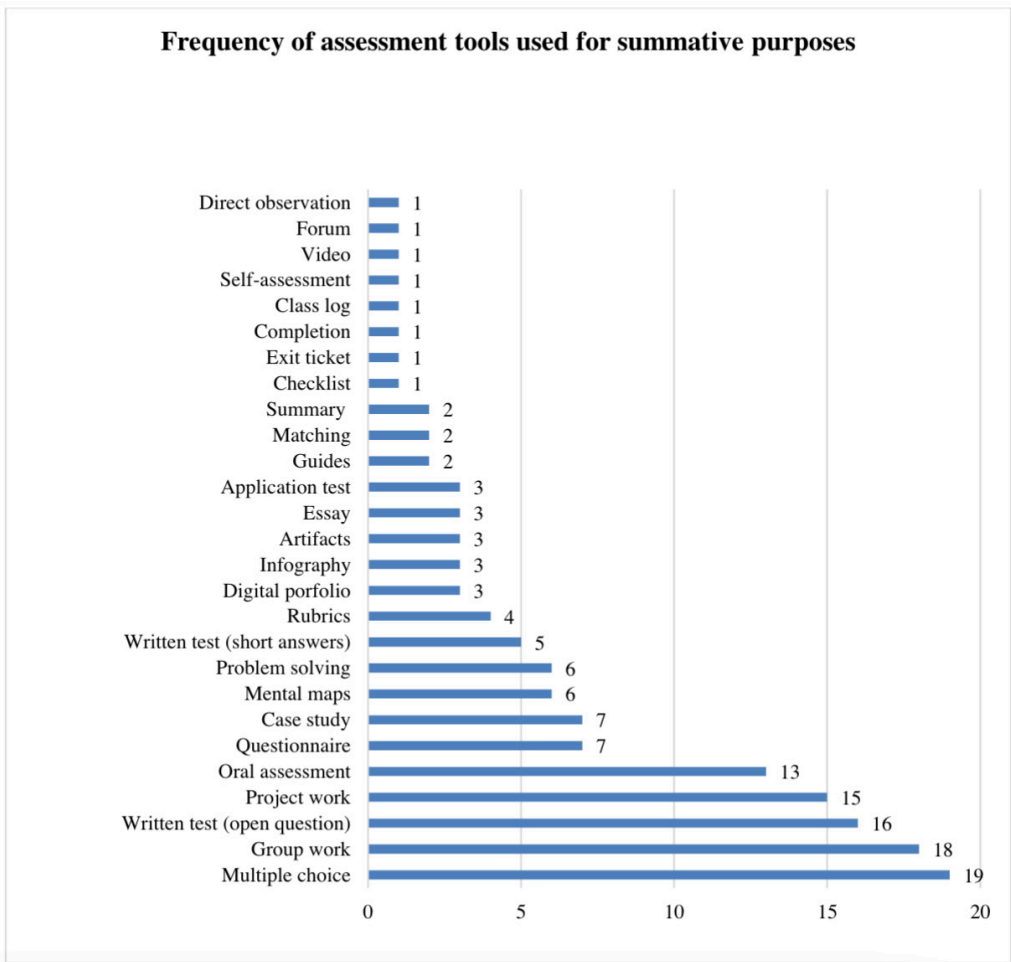


Figure 3. Graphic Frequency of assessment instruments used for summative purposes

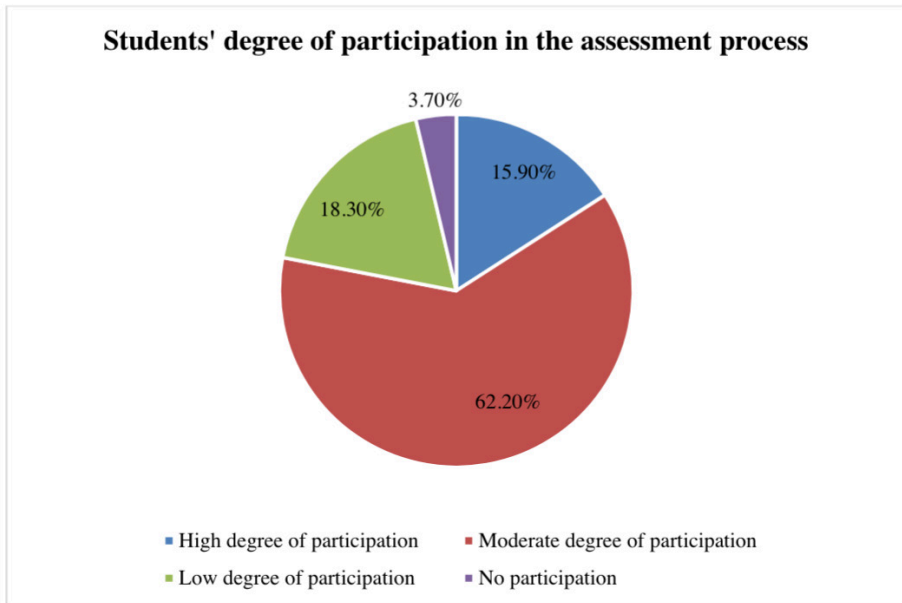


Figure 4. Graphic percentage of the students' participation in the assessment process

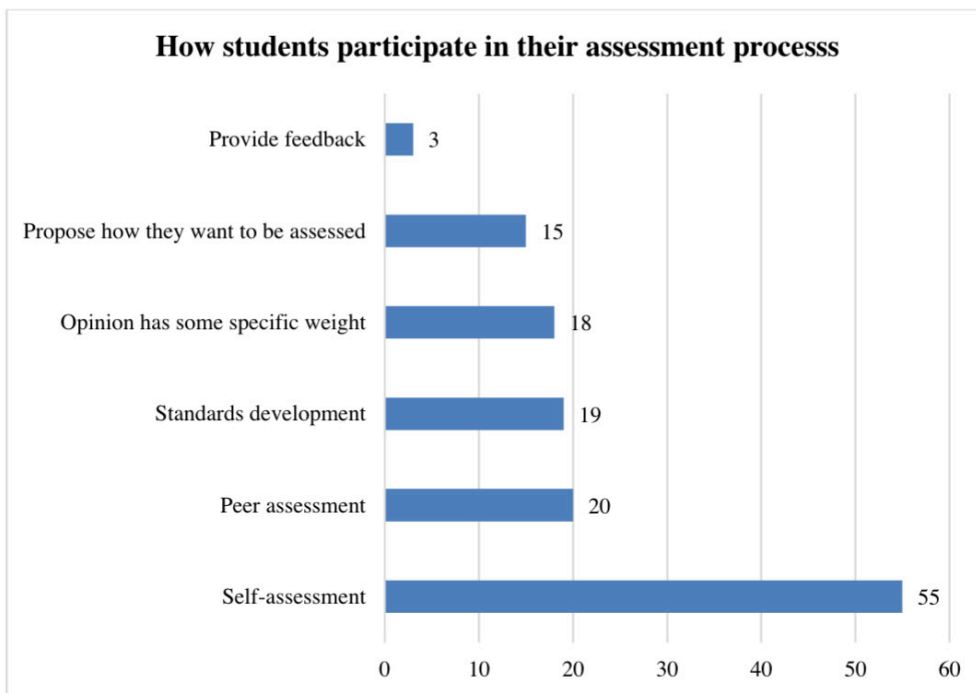


Figure 5. Graphic how students participate in their assessment process

Learning assessment may serve different purposes. This study focuses on evaluation instruments most frequently used for diagnostic, formative, and summative objectives. Besides, we search on the participation degree students have in their learning assessment processes and the form such participation takes.

Written tests with open questions are the only assessment tool used for the three kinds of evaluation. Evaluation instruments used for two different purposes are multiple-choice items, oral assessment, group work, and project work. Other highly used instruments for one purpose are written tests with short answers, direct observation, mental maps, and rubrics.

Informers regard student participation as moderate, taking mainly the form of self-assessment. There seems to be a need to enhance students' participation in their learning assessment systems.

Though this study was conducted in three regions, we still dim it local. Thus, generalising

its results would be difficult. Further inquiry into other realities could be interesting to establish common ground and identify differences regarding the use of different assessment instruments.

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