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Artículos de investigación científica y tecnológica

THE CONCEPTS OF LEARNING AND EVALUATION IN PRIMARY EDUCATION STUDENTS

La concepción del aprendizaje y la evaluación en alumnos de educación primaria

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Abstract: The purpose of this research is to identify the concept that primary education students have regarding learning and evaluation; variables are organized according to contributions of authors reviewed for the elaboration of the research instrument, which are distributed per complex variables classifying those corresponding to each learning theory; Bloom's taxonomy was considered for the stages of learning and evaluation. The methodology was based on a research instrument applied to sixth grade primary school students, with a sample of 100 subjects. The main findings reveal that students believe teaching is required to learn, i.e., teacher's instructions, as well as coexistence between all those involved; likewise, that memory and concentration are considered the most important aspects to achieve learning; a mixture of behaviorism and cognitivism can be observed as prevalent theories and methodologies applied in the classroom. With these results, it is possible to visualize the impact that teaching has on students, through the implicit message transmitted by the teacher in relation to the learning process and their work in the classroom.
Evaluation; learning; education.
https://doi.org/10.15765/pnrm.v14i27.1525

Keywords: Evaluation, learning, education.

Resumen: El propósito de esta investigación es identificar el concepto que tienen los alumnos de educación primaria referente al aprendizaje y la evaluación; se organizan las variables según las aportaciones de los autores revisados para la elaboración del instrumento de investigación, donde se distribuyen por variables complejas que clasifican las correspondientes a cada teoría de aprendizaje, la taxonomía de Bloom para lo relacionado con las fases del aprendizaje y la evaluación. La metodología se basó en aplicar un instrumento de investigación en alumnos de sexto grado de educación primaria, con muestra de 100 sujetos. Dentro de los principales hallazgos se obtiene que los alumnos consideran que para aprender es necesario la enseñanza, es decir, las instrucciones del docente, así como la convivencia entre todos los involucrados; consideran la memoria y la concentración como aspectos más importantes para lograr el aprendizaje; observándose que prevalece una mezcla de conductismo y cognocitivismo como teorías y metodología aplicada en el aula. Con dichos resultados, se logra visualizar el impacto que tiene en los alumnos el quehacer docente, en el mensaje implícito que transmite el maestro en relación con el proceso de aprendizaje y su trabajo en el aula.

Palabras clave: Evaluación, aprendizaje, educación.

INTRODUCTION

This research highlights key elements of the meaning of learning and evaluation contributed by different authors throughout history, with the

intention to select the representative variables of each one and process the data according to the answers provided by sixth grade primary school students, according to an instrument designed for said purpose. Results show an overall outlook concerning students' concept of in terms of learning and evaluation inferred by teachers' methodology in the classroom. This work shows the current ideas of those concepts in contrast with some new trends, pondering the educational practice in primary school.

METHODOLOGY

This research is relational and applied, it is oriented towards solving situations taking place in the setting from which the corresponding sample was taken; based on the random selection of 100 subjects (Hernandez, 2006), it is of cross-cut and synchronous nature; it resorted to an ordinal scale to define the opinions collected from each individual.

The instrument was applied based on the pilot test that comprises thirty individuals to verify clarity, pertinence and objectivity of each assigned question, as well as of variables selected; the resulting Cronbach's alpha was of 0.946, indicating that it can be applied to the target population and that it reliably measures each indicator.

The objective of the research was to identify students' concept of learning, according to the variables characterizing each theory and its authors; it also identifies the most relevant aspects pertaining the topic of evaluation in the classroom, among different levels in the development process (Bloom), acknowledging students' opinions on each aspect.

The core thesis is as follows: students' concept of learning and evaluation is the main evidence of the educational process being conducted in primary education.

THEORETICAL REFERENCES

This document examines diverse ideas of the words learning and evaluation, encompassing etymological roots, overall concepts and proposals by some of the most distinctive authors in the educational field; to subsequently chose the keywords to integrate into the research instrument pertaining learning and evaluation in the classroom.

The word learning has Latin roots and it means action and effect of learning. Its lexical components are the prefix *ad-* (towards), *prehendere* (to grasp), *iz* (feminine agent) and the suffix *-aje* (action). Learning comes from the Latin word *aprehendere*, made up by the prefix *ad-* (towards), the prefix *prae-* (before) and the verb *hendere*(to grasp, to catch). The Latin verb *hendere* seems to derive from the same root (**ghend*) and from the notion of getting tangled and catching. To find, to hold.

The Royal Spanish Academy (RAE, for its Spanish acronym), defines learning as an acquisition of something by means of studying or through experience. The concept of cognitive learning refers to the processes that

intervene in this transformation, beginning with the sensory input, then the cognitive system and the final output.

Before this understanding, other proposals defined the standpoint on learning. In the classical age, Plato (427-347 BC) stated that learning has to do with remembering ideas that have been gifted to the learner before birth; Aristoteles (384-327 BC) acknowledged that senses play an important role, and he observed that the memory of a concept is facilitated through a person's association of that concept or idea.

In the Middle Ages, Juan Luis Vives (1492-1540) was the first person to apply psychology in education; Comenius (1592-1670) asserted that example is the true rule of wisdom; illustrations in books and plays were highlighted in his book *The Great Didactic*, which by the end of this period, focused on a practical school.

In modern history, John Locke (1632-1704) claimed that learning is the development of innate powers or potentials perceived by the senses - the *tabula rasa* of human mind- he emphasized on the sensory experience, in his opinion, perception is a synonym of learning and a product of experience. Johann Friedrich Herbart (1776-1841) appealed to insight or self-observation, the relationship of new ideas; he validated three levels or stages of learning: sensory, memory (exact reproductions) and conceptual thinking or understanding. John Dewey (1859-1952) added that learning is a matter of content, you learn by doing, by solving concrete and personal problems. Juan E. Pestalozzi (1746-1827) championed observation, experimentation, reasoning and the analytical method.

Apperception came before stimulus-response conditioning (John Watson, 1878-1958; Connectionism, Edward L. Thorndike, 1874-1949); these encompass all of the stimulus-response conditioning theories, including connectionism. The significance is to study the connection between the environment and organisms, stressing on the answers given to adapt. Then came the law of effect, which refered to the impact of reinforcement and punishment, stimulating the reward or success in order to heighten learning.

Neo-behaviorists such as N. E. Miller, B.F. Skinner and K.W. Spence (1907-1967) were more concerned about the way in which the stimuli and responses were conducted.

Gestalt representatives, Max Wetheimer (1880-1943), Wolfgang Kolher (1887-1967), Kurt Koffka (1886-1941) and Kunt Lewin (1890-1947), mentioned that the phenomenon of learning is tightly related to perception (configuration or pattern).

Wilhelm Wundt (1832-1920) introduced the method of introspection of observable forms of behavior. Watson and Ivan Petrovich Pavlov (1832-1920) concluded that learning is a process of constitution of reflexes conditioned by replacing one stimulus for another, it is a conditioned response which is represented in a stimulus-response relationship. Thordike (1932) declared that learning is reinforcement based on trial/error and the law of effect. Guthrie (1886-1959) explained that learning can be elaborated in terms of

associations of experiences, conceding that reinforcement does not strengthen motivation.

Hull (1884-1952) equated learning to habits and reduced habits to the laws of conditioning and effort. Skinner (1904-1990) proposed operant conditioning (also called instrumental conditioning), adding that skill is acquired through practice; he suggested people are malleable and, therefore, can be trained to develop any type of behavior.

In contemporary history, Emile Durkheim (1858-1917) related education with sociology. Albert Bandura (1925), in his social learning theory, mentions that learning takes place through model observation and that it can be sustained through reinforcement.

Cognitivism studied diverse processes such as problem-solving, reasoning, perception, decision-making and linguistic acquisition (1958 and 1967). Cognitivism clusters, among others: Alan Baddeley (1934), Frederic Barlett (1886-1959), Jerome Bruner (1915), George A. Miller (1920-2012), Herbert Simon (1916-2001), Robert Solso (1933-2005), Lev S. Vygotsky (1836-1934) and Jean Piaget (1896-1980).

Jean Piaget (1896-1980) stated that the individual's activity is the origin of progressive construction of knowledge (underlying structures). Vygotsky (1896-1934) explained that knowledge and dexterities are built; he attributed the subject's learning and the development of thinking to cultural and social environments. Horkheimer (1895-1973) proposed learning in terms of grabbing, holding on to, apprehending, the result of social practice, but also as the outcome of the history of the subject's community. Ausubel (1918-2008) interpreted learning arguing that meaningful learning will occur if new information is incorporated to the cognitive structure. Horkheimer (1895-1973) added that apprehending is a social practice.

John Dewey (1859-1952) explained that learning takes place by means of initiative, originality and cooperation; it is a pragmatic action of experimentation. Celestin Freinet (1896-1966) indicated that education needs to be based on interest, on what is familiar, through a search method. Decroly (1871-1932) mentioned that discovering needs leads to discovering interests, the child seeks knowledge.

Gestalt theorists such as Max Wertheimer (1880-1943), W. Kohler (1887-1967), Kurt Koffka (1886-1941) and Kurt Lewin (1890-1947), as part of the humanist wave founded by Fritz Perls (1893-1970), suggested that learning is attained through perceptive activity. Learning is considered a secondary and derivative phenomenon, what is learned is the result of the laws of perceptual organization, figure-ground (what is focused attentively).

Carls Rogers (1907-1987) indicated that independence, creativity and self-trust enable self-criticism, openness to change and adaptation. Ausubel (1918-2008), added that learning has to be meaningful (Norman-Acevedo, E.; Vega, M.E.; Cabrales, F. A.; Alarcon, 2020).

Nowadays, it is common to refer to the theory of multiple intelligences, it states that learning incorporates knowledge of some skills in a functional and social context. Neuro-linguistic programming (NLP)

claims that when we learn, we follow guidelines or stages of learning, interest, intention and assimilation (Carrión, 2005). Boosting learning implies students to assume the responsibility of this activity (Gardner, 2005).

Learning styles (Keefe, 1988) are cognitive, affective and physiological traits that act as relatively stable indicators of how students perceive, interact and respond to their learning environment.

Maslow defined a hierarchy of needs (physiological, psychological, safety, belonging and self-esteem). Goleman (1989) talked about emotional and social parameters. Herman highlighted the importance of each brain hemisphere in human beings' activities while learning. Kolb (1970) stressed the importance of direct and abstract experiences.

The learning process, according to Benjamin Bloom (1956), pertains to the following levels: *knowledge*, referring to the recollection of previously-learned material through facts, terms, basic concepts and answers that can be remembered (relate, show, list, observe, enumerate, copy, memorize, name, organize, recognize, repeat, reproduce); *understanding*, grasping facts and ideas through organization, comparison, translation, interpretation, descriptions and formulation of main ideas (interpret, classify, describe, explain, express, identify, distinguish, locate, report, formulate, select, translate); *application*, using new knowledge, solving and applying acquired knowledge (choose, demonstrate, dramatize, represent, utilize, illustrate, solve, experiment, operate, prepare, practice, apply, program, solve, use, build); *analysis*, discriminating information, finding evidence to substantiate generalizations (reason, calculate, question, categorize, compare, contrast, relate, discriminate, design, differentiate, research, prove, distinguish, examine, infer); *synthesis*, compilation of information by combining elements in a new pattern or proposing alternative suggestions (unite, organize, assembly, trace, compilate, understand, build, redact, design, formulate, administrate, solve, plan, summarize, propose, create); *evaluation*, presentation and defense of opinions judging the information, validity of ideas or quality of a piece of work, in connection with a set of criteria (diagnose, measure, argument, interpret, criticize, review, estimate, score, give an opinion, predict, confirm, conclude).

Adolph Ferrieré (1879-1960) explained that learning is the foundation that mobilizes life's centers of interest. Montessori (1870-1952) addressed freedom of choice, interests, internal reinforcement, learning in context and social interaction. William E. Kilparty (1871-1965) explained that projects benefit a learning environment through experiences. Emilia Ferreiro (1967) introduced a system of ideas. Richard Gerver (2009) elaborated on the development of the awareness of potential or creativity; skills of competence, entrepreneurial mentality. John Moravec (2011) suggested that invisible learning revolves around sharing experiences, critical thinking and sustainable learning. Judi Harris (2012) tackled learning from the perspective of technology. (George Siemens, 2012; Daza-Orozco, 2015) formulated connectivism; knowledge is a network, the way in which it connects defines our level

of learning. Roger Schank (2013) worked on learning by doing, natural learning, and adds that failures and mistakes are key to learning. David Albury (2013) understood learning as a heritage of flexible and malleable learning.

Concerning the meaning of the term evaluation, Spanish dictionaries define it as the action and effect of evaluating, of estimating value. Formed by the prefix *ex-* which indicates the idea of separation from the inside to the outside. Value (strength-vigor) is a quality considered to be particular and distinctive of certain attributes. In connection with strength, it is outstanding, the quality or skill, capacity, as per its Indo-European root **kap* (grab, gain). The Latin word *valore* is connected with the Indo-European root **wal* (being strong).

Value, overall, is everything that must be preferred or selected (Abbagnano, 1901-1990); it depends on the need and opinion of others (Hobbes, 1588-1679); it is changing and relative (Nietzsche, 1844-1900); must be the norm of judgable things (Windelbond, 1848-1915); it can be transformed in transcendent realities (Rikert, 1863-1936); it is an act of preferential choice (Scheler); a category classification (Simmel, 1858-1918); an opinion with immediate value (Dewey, 1859-1952); a point of view that supposes a reference to men and their opinion parameters (Heidegger, 1889-1952); knowledge of the facts (Singer); stances assumed by a man for himself and others (Weber, 1864-1920).

Values are principles, virtues or qualities that set a person aside, that stand out in an individual, and which, at the same time, motivate him/her to act in a certain way and express feelings and interests. Value is a quality conferred upon things; in connection with strength, it refers to the magnitude of movement caused in said impulses or interactions. Therefore, evaluating entails calculating the value (quantitative and qualitative) of the subject's attribution towards the object.

Evaluating within a training approach allows teachers to reflect about their teaching practice and how children learn, with the aim of steering to achieve educational accomplishment; the use of diagnosis evaluation helps reveal prior knowledge; training evaluation enables the valuation of the educational process; and summative evaluation assists in making decisions with accreditation, and allows communication

of the results in its different modalities (hetero-evaluation, self-evaluation and co-evaluation).

Traditionally, the father of educational evaluation is Tyler (1931), he was the first to give a methodic view for it; evaluation is not just a simple measurement, it supposes a value judgement concerning collected information. It may be regarded as an instrument to raise awareness on the academic tasks and facilitate innovation (Gonzalez, 1996; Barba Abad Magdalena; Alvarado Nando, Maritza; De La Rosa Daza, Deisy; Mora Ramirez, Angela Julieta, 2019).

The concept of evaluation is an inherent activity to humans, it is an intentional human activity, which is why it must be systematic and set out to define the value of something (Popham, 1990). Other authors

refer to evaluation as a systematic activity or process of identification, collection or data treatment of educational elements or facts, with the purpose of valuating them to proceed with the decision-making process (Garcia, 1989).

Evaluation is the cognitive action or process by which we make a statement concerning the quality, value and importance of certain element (Michel Scriven, 2013). Authentic evaluation deals with the representative challenges of the typical tasks of a particular discipline, as per its degree of complexity (Wiggins, 1989); these can be realistic, complex, novel, etc.

Formative evaluation is a systematic and continuous activity aimed at delivering information about the educational process, to readjust its objectives, critically review its plans, programs, methods and resources, guide students and give feed-back on the process (De los Santos, 2006).

The field of educational evaluation deals with a comprehensive and systematic process through which information is methodically collected, in order to know, analyze and judge the value of certain educational object: students' learning, teachers' performance, command of the curriculum and its characteristics (Ruiz, 1996; Hopkins, 1998; JCSEE, 2003; Werthen, Sanders & Fitzpatrick, 1997).

Evaluating learning is the process of attaining evidence, judging and providing feed-back of students' learning achievements throughout their training; it is constitutive of teaching and learning (SEP, 2011).

Measurement is defined as the allocation of a numerical value or knowledge of skills, values or attitudes by students in a time frame. An estimation is the concrete action of passing judgement of what has been learned, based on quantitative and qualitative evidence. Grading refers only to the qualitative (or quantitative) expression of the performance level with a numeric scale of judgement used by the teacher. Accreditation consists in deciding the pertinence of a student passing to the next school grade or educational level, as a response to the qualitative and quantitative evidence of the achievement expected.

Formative evaluation is a process of continuous change, it is the result of students' actions and of teachers' pedagogical suggestions (Diaz & Hernandez, 2002).

Michael Scriven (2013) defined evaluation as the cognitive action or process through which a statement about quality, value or importance of a particular entity is established.

Evaluation, in the case of learning, implies attributes corresponding to its acquisition process: the didactic approach, content, methodology, time, organization, resources, techniques and instruments... all of the factors that involve pedagogic development of educational institutions. An in-depth evaluation of learning also considers the emotions awakened in the evaluating party and on the students, the interpretation of inclusion and exclusion contexts, as well as teachers' beliefs about their students' capacities (Rebeca Anijovich 2018).

RESULTS

variable	n	X	S	n+	n-	min	max	k	Omni	cv	z	Mo
curiosity	98	46.74	35.08	81.82	11.66	0	100	1.69	56.9	0.75	1.33	50
interests	98	51.89	35.19	87.08	16.7	0	100	1.57	108.96	0.68	1.47	100
motivation	100	62.20	36.34	98.54	25.86	0	100	1.55	135.78	0.58	1.71	100
ideas	99	62.32	34.15	96.47	28.17	0	100	1.54	143.91	0.55	1.82	100
creativity	98	59.83	31.19	91.02	28.64	0	100	1.92	19.79	0.52	1.92	100
coexistence	99	68.26	34.92	103.18	33.34	0	100	1.99	22.34	0.51	1.96	100
needs	100	45.44	33.96	79.40	11.48	0	100	1.7	54.47	0.75	1.34	50
instruction	99	56.06	35.43	91.49	20.63	0	100	1.56	126.39	0.63	1.58	100
concentration	99	70.48	32.47	102.96	38.01	3	100	2.05	18.83	0.46	2.17	100
behavior	99	65.69	34.17	99.86	31.52	0	100	1.89	27.12	0.52	1.92	100
habits	99	54.99	32.60	87.59	22.39	0	100	1.72	47.84	0.59	1.69	50
technology	100	48.96	37.14	86.10	11.82	0	100	1.52	176.04	0.76	1.32	100
senses	100	44.80	33.56	78.36	11.24	0	100	1.73	47.54	0.75	1.34	50
reasoning	100	52.56	36.50	89.06	16.06	0	100	1.5	204.19	0.69	1.44	100
memory	99	64.81	35.82	100.62	28.99	1	100	1.78	41.46	0.55	1.81	100
perception	93	46.00	33.69	79.69	12.31	0	100	1.61	77.59	0.73	1.37	0
emotions	100	61.39	33.64	95.03	27.75	0	100	1.69	59.21	0.55	1.82	100
thinking	100	60.15	35.75	95.90	24.4	0	100	1.67	65.63	0.59	1.68	100
competences	100	42.65	37.83	80.47	4.82	0	100	1.57	116.89	0.89	1.13	100
age	100	34.82	35.48	70.30	-1.02	0	100	1.9	28.68	1.02	0.98	0
dexterities	98	43.58	34.92	78.51	8.66	0	100	1.74	45.92	0.8	1.25	100
experiences	99	51.96	35.81	87.77	16.15	0	100	1.5	192.32	0.69	1.45	100
reflection	100	48.77	33.92	82.69	14.85	0	100	1.61	90.7	0.7	1.44	100
practice	99	56.28	34.10	90.38	22.18	0	100	1.6	95.1	0.61	1.65	100
skill	99	55.49	36.51	92.00	18.98	0	100	1.52	172.68	0.66	1.52	100
teaching	100	66.51	34.26	100.77	32.25	0	100	1.89	28.61	0.52	1.94	100
intelligence	100	63.17	35.80	98.97	27.37	0	100	1.7	56.71	0.57	1.76	100
rewards	100	35.80	38.57	74.37	-2.77	0	100	1.76	46.37	1.08	0.93	0

Table 1

Aspects considered important in the development of learning according to the students

Table 1 shows that students believe the most significant aspects to develop learning in the classroom are concentration, coexistence, motivation, exchange of ideas, behavior and memory; others think that emotions, thinking, teaching and intelligence should also be included among the significant aspects. The least relevant to them in learning are age, reinforcement, competition, perception, senses, needs and curiosity. These opinions reveal a heterogeneous behavior, i.e., more than two groups manifest their answers in a different way.

The aforementioned leads to infer that the dominant concept of learning amongst primary education students can be located in the platonic foundations of the world of ideas for the development of conceptual thinking or understanding (Herbart); it picks up on their cultural and social environment (Vygotsky); as well as on their persisting emotional parameters (Goleman). According to the students, learning is an idealized concept dependent on the social sphere and on coexistence with peers; teaching is the key to attain learning, setting aside interests and needs that may manifest in the classroom.

variable	n	X	S	n+	n-	min	max	k	Omni	cv	z	
learning	100	73.5	34.86	108.37	38.64	1	100	2.22	17.43	0.47	2.11	100
process	99	63.7	33.63	97.287	30.07	0	100	1.75	45.42	0.53	1.89	100
Synthesis	90	51.9	32.02	83.933	19.88	0	100	1.63	64.59	0.62	1.62	50
memory	100	61.4	36.26	97.626	25.14	0	100	1.58	113.14	0.59	1.69	100
results	100	62.7	36.98	99.633	25.72	0	100	1.61	93.65	0.59	1.69	100
understanding	100	56.9	34.98	91.903	21.92	0	100	1.58	111.39	0.61	1.63	100
usefulness	98	48.4	32.74	81.121	15.66	0	100	1.71	49.24	0.68	1.48	50
analysis	98	54.8	37.2	92.001	17.6	0	100	1.45	332.77	0.68	1.47	100

Table 2.
Aspects in the development of evaluation

Table 2 includes students' opinion regarding the importance of the aspects in the development of evaluation, the following are the most important in learning: processes and outcome; the least important are usefulness, analysis, synthesis and understanding.

This helps conclude that students' perception concerning evaluation is connected with the compilation of information based on performance, command of learning content and its characteristics (Ruiz); their learning accomplishment in connection with teaching (SEP), and the product of said actions (Barriga), as per the value defined in certain entity (Scriven). The emphasis is in the result, not in the specific process of a formative evaluation.

variable	n	X	S	n+	n-	min	max	k	omni	cv	z	
Interpreting	100	47.4	35.32	82.766	12.08	0	100	1.54	151.05	0.74	1.34	100
classifying	99	53.2	35.49	88.709	17.71	0	100	1.52	170.03	0.67	1.5	100
describing	100	48.8	34.51	83.279	14.29	0	100	1.56	128.63	0.71	1.41	100
explaining	100	58.2	36.39	94.608	21.81	0	100	1.55	140.48	0.63	1.6	100
expressing	100	57.1	34.9	91.995	22.2	0	100	1.5	200.65	0.61	1.64	100
identifying	100	60.7	34.02	94.731	26.68	0	100	1.74	45.75	0.56	1.78	100
distinguishing	100	56.6	36.96	93.552	19.64	0	100	1.48	266.5	0.65	1.53	100
locating	99	53.1	36.67	89.769	16.49	0	100	1.4	898.42	0.69	1.45	100
reporting	99	40.2	34.36	74.572	5.84	0	100	1.86	28.17	0.85	1.17	0
enunciating	98	36.7	32.64	69.313	4.06	0	100	1.88	26.01	0.89	1.12	0
selecting	99	46.4	31.37	77.799	15.03	0	100	1.72	46.79	0.68	1.48	100
translating	100	44.6	34.89	79.498	9.71	0	100	1.66	66.75	0.78	1.28	0

variable	n	X	S	n+	n-	min	max	k	omni	cv	z	
relating	99	44.5	35.8	80.299	8.7	0	100	1.66	66.79	0.8	1.24	50
highlighting	99	43.4	34.26	77.636	9.14	0	100	1.73	46.73	0.79	1.27	100
listing	96	44.2	33.31	77.519	10.89	0	100	1.71	48.15	0.75	1.33	10
observing	98	63.7	33.35	97.094	30.35	0	100	1.73	48.61	0.52	1.91	100
enumerating	100	48.3	35.26	83.594	13.04	0	100	1.63	79.14	0.73	1.37	100
copying	99	39.3	40.31	79.577	-1.01	0	100	1.53	163.05	1.03	0.97	0
memorizing	100	60.8	37.25	98.086	23.55	0	100	1.5	205.15	0.61	1.63	100
naming	98	46	37.34	83.31	8.66	0	100	1.47	277.13	0.81	1.23	100
organizing	100	55	37.82	92.836	17.18	0	100	1.4	1330.1	0.69	1.45	100
recognizing	100	55	39.13	94.114	15.87	0	100	1.31	1753.1	0.71	1.4	100
repeating	99	39.4	35.78	75.162	3.62	0	100	1.8	38.55	0.91	1.1	0
reproducing	96	44.6	32.7	77.289	12.31	0	100	1.66	61.52	0.73	1.36	50

Table 3.
Actions to recall what has been learned

In Table 3,students give their opinion on the actions implemented to remember and understand what has been learned; students explain that the most important thing to remember is observing and memorizing; they resort to repeating and copying less frequently. Other actions are at an intermediate level of relevance, such as relating, noting, listing, enumerating, naming, organizing, recognizing and reproducing.

According to Bloom, the first level of evaluation highlights Herbart's concept regarding new ideas in the sensory and stage and memory with exact reproductions as the foundation for understanding.

As to what they say about the most important actions to understand what is being learned, students mention identifying, explaining, expressing and distinguishing; while formulating, translating and selecting are less important for understanding. It can be said that in this educational level, students opt for solving problems that agree with cognitivism, in which perception, reasoning and decision-making prevail to structure ideas based on prior ideas (underlying structures, according to Piaget and Vygotsky); Gestalt theory is also present when suggesting that learning takes place through a perceptive activity (Fritz Perls).

variable	n	X	S	n+	n-	min	max	k	omni	cv	z	
choosing	100	53.1	38.6	91.689	14.5	0	100	1.36	3466	0.73	1.38	100
demonstrating	100	56.9	33.07	90.008	23.83	0	100	1.62	86.41	0.58	1.72	50
dramatizing	98	40.4	32.72	73.129	7.68	0	100	1.8	34.02	0.81	1.24	0
representing	99	49.1	34.35	83.472	14.75	0	100	1.54	140.24	0.7	1.43	100
using	97	47.6	34.65	82.236	12.95	0	100	1.63	76.93	0.73	1.37	100
illustrating	97	53.9	34.47	88.377	19.43	0	100	1.66	63.61	0.64	1.56	100
solving	99	58	33.59	91.566	24.41	0	100	1.67	64.86	0.58	1.73	100
experimenting	99	60.5	36.42	96.921	24.08	0	100	1.63	78.59	0.6	1.66	100
operating	96	34.8	35.61	70.415	-0.81	0	100	1.81	35.38	1.02	0.98	0
preparing	99	56.7	34.72	91.427	21.98	0	100	1.61	87.03	0.61	1.63	100
practicing	99	58.1	36	94.1	22.1	0	100	1.55	130.9	0.62	1.61	100
applying	98	49.1	36.72	85.832	12.38	0	100	1.5	188.25	0.75	1.34	100
programming	99	40.3	33.54	73.856	6.76	0	100	1.93	22.62	0.83	1.2	10
solving	99	43.8	37.97	81.754	5.83	0	100	1.51	183.15	0.87	1.15	100
using	100	51.3	36.56	87.889	14.74	0	100	1.45	368.5	0.71	1.4	100
building	98	41.7	36.55	78.295	5.15	0	100	1.7	53.53	0.88	1.14	100

Table 4.
Actions to use what has been learned

Table 4 illustrates students' opinion on the most relevant actions to apply their learning, in this case, experimenting, preparing, practicing and demonstrating. To them, the least important are to operate, program, dramatize, solve and build. It can be inferred that students use their acquired learning via experimentation, which John Dewey considered a pragmatic action.

variable	n	X	S	n+	n-	min	max	k	omni	cv	z	
analyzing	99	60.1	38.42	98.562	21.68	0	100	1.53	161.36	0.64	1.57	100
reasoning	100	55.2	33.21	88.411	21.99	0	100	1.55	132.84	0.6	1.66	50
calculating	100	59.8	32.81	92.64	26.99	0	100	1.83	31.29	0.55	1.82	100
questioning	100	52.2	32.58	84.746	19.62	0	100	1.61	87.9	0.62	1.6	10
categorizing	93	40.2	32.32	72.484	7.88	0	100	1.87	23.78	0.8	1.24	0
comparing	99	48.3	33.48	81.822	14.82	0	100	1.61	88.16	0.69	1.44	50
contrasting	95	42.1	35.37	77.471	6.73	0	100	1.64	70.33	0.84	1.19	100
relating	98	45.8	36.6	82.362	9.2	0	100	1.49	210.96	0.8	1.25	100
discriminating	97	24.9	33.06	57.942	-8.16	0	100	2.67	15.69	1.33	0.75	0
designing	99	42	37.19	79.182	4.81	0	100	1.62	86.76	0.89	1.13	100
differentiating	98	44.2	36.01	80.23	8.19	0	100	1.53	151.7	0.81	1.23	0
investigating	97	53.9	37.56	91.411	16.34	0	100	1.4	865.05	0.7	1.43	100
proving	96	47.2	35.42	82.643	11.78	0	100	1.57	103.84	0.75	1.33	100
distinguishing	96	48.2	32.79	80.97	15.41	0	100	1.72	44.51	0.68	1.47	50
examining	96	47.8	34.92	82.69	12.88	0	100	1.57	109.46	0.73	1.37	100
inferring	91	37.4	33.93	71.319	3.47	0	100	1.89	23.7	0.91	1.1	0

Table 5.
Actions to analyze learning

Table 5 details actions regarded as more important by children to analyze learning, as follows: calculating, reasoning and questioning; the least appropriate are discriminating, inferring, categorizing and designing. In an intermediate scale are analyzing, comparing, contrasting, relating, differentiating, researching, proving, distinguishing and examining. It can be concluded that primary students analyze what they learn through experimentation (Dewey), and thus build their learning (Piaget).

variable	n	X	S	n+	n-	min	max	k	omni	cv	z	
uniting	98	52	38.35	90.336	13.65	0	100	1.36	4956.1	0.74	1.36	100
organizing	100	56.2	35.17	91.344	21.03	0	100	1.48	244.19	0.63	1.6	100
assembling	96	42.4	33.24	75.603	9.16	0	100	1.59	95.34	0.78	1.27	0
outlining	97	41.6	33.3	74.934	8.3	0	100	1.72	48.74	0.8	1.25	0
compiling	95	47.2	32.45	79.65	14.75	0	100	1.68	53.64	0.69	1.45	100
understanding	97	48.6	34.02	82.591	14.58	0	100	1.59	93.87	0.7	1.43	10
building	100	47.6	35.29	82.848	12.31	0	100	1.53	155.52	0.74	1.35	100
writing	100	46.6	34.42	81.02	12.18	0	100	1.56	126.02	0.74	1.35	100
designing	99	43.4	35.88	79.327	7.52	0	100	1.61	90.85	0.83	1.21	0
formulating	98	42	34.27	76.317	7.73	0	100	1.62	83.92	0.81	1.23	10
administrating	99	42.8	32.94	75.721	9.86	0	100	1.77	40.3	0.77	1.3	10
solving	100	45.1	33.99	79.086	11.11	0	100	1.57	113.06	0.75	1.33	0
planning	98	50.9	36.62	87.476	14.28	0	100	1.41	657.19	0.72	1.39	100
summarizing	97	46.6	33.95	80.512	12.65	0	100	1.6	87.78	0.73	1.37	0
proposing	96	48.2	38.71	86.938	9.49	0	100	1.34	2774.2	0.8	1.25	100
creating	95	54.7	38.01	92.699	16.69	0	100	1.39	1157.3	0.7	1.44	100

Table 6.
Actions to synthesize what has been learned

Table 6 shows the actions regarded as most important by students to synthesize their learning; the most relevant are organizing, creating and planning information; the least are formulating, administrating and designing. In an intermediate scale are uniting, assembling, outlining, compilating, writing, solving, summarizing and proposing. Therefore, students build their learning after synthesizing their ideas similarly as they did with their foundations, without new alternatives (Piaget).

variable	n	X	S	n+	n-	min	max	k	omni	cv	z	
diagnosing	96	48.8	36.72	85.514	12.08	0	100	1.46	268.74	0.75	1.33	100
measuring	98	51	35.08	86.068	15.92	0	100	1.47	258.67	0.69	1.45	100
arguing	99	51.2	36.42	87.635	17.78	0	100	1.43	451.47	0.71	1.41	100
interpreting	100	43.7	34.65	78.333	9.05	0	100	1.78	39.31	0.79	1.26	100
criticizing	98	39.4	36.51	75.919	2.89	0	100	1.65	71.92	0.93	1.08	0
reviewing	98	45.7	37.89	83.628	7.81	0	100	1.47	280.07	0.83	1.21	100
estimating	96	39.7	37.61	77.302	2.09	0	100	1.6	90.06	0.95	1.06	0
grading	98	50.4	40.18	90.583	10.22	0	100	1.29	1377.4	0.8	1.25	100
giving opinions	100	50.8	37.4	88.222	13.4	0	100	1.38	16925	0.74	1.36	100
predicting	92	36.4	35.62	72.014	0.78	0	100	1.82	32.45	0.98	1.02	0
accrediting	94	41.6	34.86	76.428	6.74	0	100	1.7	51.17	0.84	1.19	0
concluding	97	41.4	34.11	75.547	7.29	0	100	1.8	33.97	0.82	1.21	0

Table 7.
Actions to evaluate learning

Table 7 focuses on the most significant actions to evaluate learning, as per the students, including: arguing, measuring, scoring and giving opinions; the least significant are predicting, estimating and criticizing. Among those that are not emphasized are diagnosing, reviewing,

accrediting and concluding. It can be said that students' concepts about the last level of evaluation (Bloom) are the result of underlying structures by assigning a numerical value and expressing it at performance level according to the teacher's judgement. An interpretation of learning is made arguing the appearance of meaningful learning (Ausubel). It is an opinion with immediate value (Dewey).

In students' opinion curiosity depends on their interest to develop it, motivation arises from instructions provided and from students' concentration, expressed behavior, applied reasoning and perception. New ideas are also developed with curiosity. Following instructions is also connected with motivation, concentration, behavior, reasoning and use of memory. Concentration takes place based on motivation, instruction, expressed behavior, reasoning, memory, perception and conveyed reflection.

Teaching is significantly related to practice, and intelligence to reasoning, reflection and teaching. This leads to infer that students expect an extrinsic motivation to develop learning, as well as showing interest and curiosity for it. Teacher's instructions or guidance in the classroom are critical in the development of learning in these cases.

variables	learning	process	synthesis	results	understanding	usefulness	analysis
learning	1.00	0.47	0.16	0.09	0.21	0.32	0.41
process	0.47	1.00	0.28	0.19	0.26	0.26	0.29
synthesis	0.16	0.28	1.00	0.37	0.50	0.21	0.30
results	0.09	0.19	0.37	1.00	0.46	0.15	0.34
understanding	0.21	0.26	0.50	0.46	1.00	0.33	0.38
usefulness	0.32	0.26	0.21	0.15	0.33	1.00	0.34
analysis	0.41	0.29	0.30	0.34	0.38	0.34	1.00

Table 8.
Relation between evaluation's aspects

Table 8 shows likely relations between aspects considered in the evaluation; in evaluations, learning is significantly connected with its process and analysis, respectively. The application of synthesis in the process is connected with the results obtained and its verification, which also has to do with synthesis, outcome and analysis; the latter is related to learning, understanding, and usefulness in evaluation. It can be concluded that students regard evaluation as a systematic process made up by understanding, synthesis, analysis, usefulness and results; but analysis constitutes the substantial part of learning in the classroom, in it, students discriminate obtained information, finding evidence to then make generalizations. It would be useful to develop synthesis to propose new situations and validate their ideas through evaluation.

variables	interpreting	classifying	explaining	expressing	identifying	distinguishing	locating	enunciating	selecting	translating
interpreting	1.00	0.42	0.24	0.16	0.25	0.20	0.02	0.15	0.09	0.16
classifying	0.42	1.00	0.21	0.25	0.25	0.25	0.08	0.27	0.20	0.25
explaining	0.24	0.21	1.00	0.38	0.33	0.30	0.22	0.06	0.08	0.16
expressing	0.16	0.25	0.38	1.00	0.36	0.13	0.20	0.12	0.15	0.36
identifying	0.25	0.25	0.33	0.36	1.00	0.39	0.33	0.06	0.01	0.11
distinguishing	0.20	0.25	0.30	0.13	0.39	1.00	0.45	0.29	0.17	0.01
locating	0.02	0.08	0.22	0.20	0.33	0.45	1.00	0.28	0.16	0.08
enunciating	0.15	0.27	0.06	0.12	0.06	0.29	0.28	1.00	0.38	0.32
selecting	0.09	0.20	0.08	0.15	0.01	0.17	0.16	0.38	1.00	0.31
translating	0.16	0.25	0.16	0.36	0.11	0.01	0.08	0.32	0.31	1.00

Table 9.
Relation of actions to understand learning

Table 9 includes the relationship between students' actions to understand their learning: they mention that with interpretation, classification also occurs; explaining uses expression and identification; identification leads to expression and distinguishing, they also manage to locate; by formulating, they are selecting and by translating they are expressing. It is inferred that students' understanding of the facts is done through Gestalt, figure-ground, learning is tightly connected to perception (configuration or pattern). Pragmatic and experimental action; constant practice of the facts through questioning, without getting to creativity or producing new alternatives.

variables	diagnosing	measuring	arguing	interpreting	estimating	grading	giving opinions	accrediting
diagnosing	1.00	0.50	0.34	0.29	0.44	0.23	0.35	0.28
measuring	0.50	1.00	0.48	0.26	0.36	0.26	0.36	0.38
arguing	0.34	0.48	1.00	0.37	0.20	0.14	0.22	0.34
interpreting	0.29	0.26	0.37	1.00	0.30	0.18	0.13	0.18
estimating	0.44	0.36	0.20	0.30	1.00	0.11	0.26	0.23
grading	0.23	0.26	0.14	0.18	0.11	1.00	0.40	0.12
giving opinions	0.35	0.36	0.22	0.13	0.26	0.40	1.00	0.17
accrediting	0.28	0.38	0.34	0.18	0.23	0.12	0.17	1.00

Table 10.
Relation of actions to evaluate learning

Table 10 displays the relation between actions performed to evaluate their learning; when diagnosing, it is possible to measure, argue, estimate and give opinions; when measuring, there is confirmation; by arguing, there is diagnosis, measurement, interpretation and confirmation; estimation leads to diagnosis and measurement; scoring helps give an opinion. Opinion is significantly related to diagnosis, measurement and score. It can be said that measurement is the key in students' evaluation of their learning, which is defined as an allocation of numerical value in a certain period of time, without transcending or considering it foundation for new learning.

DISCUSSION

The dominant concept of learning amongst primary students is located in the platonic foundations of the world of ideas for the development of conceptual thinking or understanding (Herbart); it picks up on their cultural and social environment (Vygotsky); as well as on their persisting emotional parameters (Goleman). Learning manifests as an idea or concept depending on the individual's social sphere and on coexistence with peers; teaching is the key to attain learning, setting aside interests and needs that may manifest in the classroom.

The aspects that dominate the concept of evaluation in primary students are connected with the compilation of information based on performance, command of the learning content and its characteristics (Ruiz); their learning accomplishment in connection with teaching (SEP), and the product of said actions (Barriga), as per the value defined in certain entity (Scriven). The emphasis is in the result, not in the specific process of a formative evaluation.

According to Bloom, the first level of evaluation highlights Herbart's concept regarding new ideas in the sensory and stage and memory with exact reproductions as the foundation for understanding. In this educational level, students opt for solving problems that agree with cognitivism, in which perception, reasoning and decision-making prevails to structure ideas based on prior ideas (underlying structures, according to Piaget and Vygotsky); Gestalt theory is also present when suggesting that learning takes place through a perceptive activity (Fritz Perls). Students use their acquired learning via experimentation, which John Dewey considered a pragmatic action.

Primary students analyze what they learn through experimentation (Dewey), and thus build their learning and synthesize it to generalize their ideas (Piaget). Regarding the last level of evaluation (Bloom), it represents the result of underlying structures by allocating a numerical value and expressing it at performance level according to the teacher's judgement. An interpretation of learning is made arguing the appearance of meaningful learning (Ausubel), as per the criteria, which is an opinion with immediate value defined by the teacher (Dewey).

In the development of learning, students expect an extrinsic motivation to develop it, as well as show interest and curiosity for it; teacher's instructions or guidance in the classroom are critical for it.

Students regard evaluation as a systematic process made up by understanding, synthesis, analysis, usefulness and results; but analysis is the substantial part of learning in the classroom, in it, students discriminate obtained information, finding evidence to then make generalizations. It would be useful to develop synthesis to propose new situations and validate their ideas through evaluation.

Students use mechanization of ideas and reproduction of acquired knowledge in order to recall previous learning. Training to develop this is evinced (Skinner), skill is acquired through practice.

Students understanding of the facts is through Gestalt, figure-ground, learning is closely related to perception (configuration or pattern). Pragmatic action, constant practice of the facts through questioning and experimentation (Dewey), correspond to using and analyzing the learning and evaluation process.

Students' compilation of information reproduce knowledge with a different proposal but with the same foundations, without getting to creativity or new alternatives. In terms of learning evaluation, measurement is the key in students' evaluation of their language, which is defined as an allocation of numerical value in a certain period of time, without transcending or considering it foundation for new learning.

CONCLUSION

Processed data obtained from primary students' surveys shows a scant use of the language pertaining the topics in this work, this fact allowed to infer generalities and some correlations with answers given; still, interesting situations can be observed as to the concept they have of learning and of the evaluation process applied on a day-to-day basis inside the classroom.

Students believe that teaching is essential to learning, they specifically refer to the instructions provided to the group by the teacher, as well as coexistence among the parties involved, they mention concentration, intelligence and behavior, aside from memory and concentration, as the most important aspects to attain learning; a mix between behaviorism and cognitivism as theories or methodologies used in the classroom prevails, currently, teachers lead and impart these teaching practices. Needs, interests and curiosities of students are still not considered of vital importance in primary education.

Students deem evaluation as the result of learning, without recurring usefulness nor as a tool to keep learning; it is regarded as the outcome of schoolwork. Referring to the evaluation process, as per Bloom's taxonomy (1956), to measure levels of complexity in learning, it is clear that observing and repeating are the actions that are applied the most to recall what has been learned; followed by identification and explanation when understanding is attained; experimentation and practice are applied to use learning; research and calculation are implemented in the analysis; planning and organizing are applied in synthesis, and measuring and arguing in the evaluation of what has been learned. This evinces the fact that students follow a methodological path that aligns with cognitivism in producing meaningful learning, which often generalizes to translate to other situations or proposes new alternatives of solutions. Students express that evaluation of learning has the function of measuring to be able to argue the result.

Students' concept about learning and evaluation is the product of the work conducted by teachers; their methodology, actions and proposals implemented in the classroom, as well as their professional training result in students' actions and opinions in the classroom. There are solid grounds to consolidate learning, but the process needs

systematization, creating learning environments which are pertinent to children's requirements and to the development of their potential, that fulfill their needs to manage change in reflection and cognitive maturity of students in any educational level classroom work is another factor of students and teachers' cognitive evolution and personal and professional success.

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