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Professional Knowledge: assessment and in-service teacher training

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Abstract: *End of descriptive correlational research ex post facto evaluation of the Professional Knowledge of Elementary Teachers report. The aim is to describe the professional knowledge of Mexican teachers on 2 cores targeting: the knowledge of the subjects of mathematics and Language and curricular knowledge of the current curriculum in Mexico. It is assumed that the level of professional knowledge of teachers is substantially affecting student achievement is reflected in the performance indices of national and international assessments such as PISA. The investigative process that had culminated central question What is the relationship between disciplinary knowledge of Spanish and math curriculum knowledge they have about the Plan and Study Programs working with teachers of Basic Education in Mexico? The methodology is quantitative correlating two variables: disciplinary knowledge and curriculum knowledge. After applying three instruments evaluation of primary teachers in Jalisco as research subjects the hypothesis is rejected. It contributes to the pursuit of options for improving education through the use of professional knowledge as a baseline to propose some strategies to support the development of professional knowledge of the teacher and generate a joint between two macro processes that are performed in Mexico, the evaluation of teachers in basic education and training of teachers.*

Word keys: *Professional knowledge, evaluation, teachers training, curriculum knowledge, disciplinary knowledge*

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I. Introduction

This document describes the Mexicans teacher's professional knowledge into two central focal points: the disciplinary knowledges about mathematics and Spanish and the curricular knowledge that teachers possess about the current curriculum in Mexico. The ultimate intention of this investigative process is to useprofessional knowledge as baseline in order to propose an articulation between two macro processes that take place in the country: the evaluation of teachers and the ongoing teacher training. Currently, teacher's professional knowledge is externally and quantitatively evaluated, and,on the other hand, the teacher training take place without considering the results of their personalevaluations; neither, the teacher training process is evaluated nor its impact on the teaching of the teachers. Between both processes there is no systematic nor coherentconnection that has a positive impacton the teaching practice. This lack of connection induces weathering, low productivity and low efficiency in teaching.

Problem axis: It would seem obvious that any teacher should know in depth the disciplinary knowledge that he teaches, but that is not true. The academic tradition[1]privileges the mastery of the contents of the disciplines taught by teachers. But, some teachers don't know the discipline contents; although they don't teach them, or they do it wrong. What do Mexican teachers know about the disciplines that they taught? How to think about developing basic skills for life in children if the same teachers have hardly developed them?

"When the teachers don't know well the pedagogical content of a subject-matter, they might to limit the student's interventions doing an effort to avoid questions that they cannot be capable to answer" [2]. e.g. There are teachers who don't know some spelling rules. How will they develop the ability to communicate in writing to their students if they don't have one themselves? Another example, there are some teachers who do not know subject-matter knowledge (in math) [3], the principles, nor laws, nor operations with fractions, nor relations of proportionality like the percent, or how to divide, what will they teach into the class? How will their students develop mathematical thinking skills? It is necessary then, to know what the Mexican teachers know in order to understand then what Mexican children know.

Professional Knowledge.

Teacher's professional knowledge[4] is a system of ideas, skills and attitudes that are defined in a "set of knowledge that teachers put into play in the teaching of a specific school subject" [2, p. 72] with some characteristics such as: be intelligent, structured and dynamic[5].In the professional knowledge four knowledge core can be identified [2], [6],[7], [8]like: discipline knowledge, curriculum knowledge, psycho-pedagogical knowledge and practical knowledge. These cores interact between them, and even though these are being of a different order and nature, they are integrated in a global and holistic whole that allows the teacher can act in class.

1) Subject-matter Knowledge[9]. It is the knowledge of the basic or applied scientific disciplines. It is called: disciplinary, academic knowledge of the content, content domain, and pedagogical content knowledge (PCK) [10]. This knowledge serves to solve everyday problems and the teacher hasresponsibility to know them and, in each determinateperiod, mobilize their knowledge and update them. In this sense, teachers require a knowledge of the subject that is articulated, flexible, plural, critical and integrative [2].
2) Curricular knowledge. It implies the teacher's knowledge about the current plan and curricula, their approaches and their teaching purposes. This type of knowledge represents the transformation of disciplinary knowledge into teaching contents. Teachers must know what the contents of the teaching are, the didactic methodology and approach witch it will be necessary to work at class.

The curricular knowledge includes the following components: a) Knowledge of the purposes and educational purposes that will guide the teaching of the subject or concrete area. It means, knowledge of the curriculum; b) contents and topics that usually constitute the curriculum of each school subject; that is, the knowledge of the programs of each level; c) knowledge of teaching approaches and methods, materials and didactic resources, and evaluation strategies; and d) Knowledge of the perspective of the students in relation to the study programs and curricular contents.

Curricular knowledge is structured around fundamental issues of education:
- Educational purposes, why teach? What will determine the exit profile and the purposes of education.
- Educational content, what to teach? The answer to the question will determine which subjects should be included, how to organize them and their scope in each educational level.
- Approaches and teaching strategies, how to teach? It will determine the methodology of the teaching as well as the dynamics of interaction between the teacher and the student and the role they will play in the classroom, as well as the activities and the way of dealing with the content and address the topics to be studied. In some cases, such as in Mexico, didactic materials and unique textbooks will be established.
- Evaluation of learning, what did you learn? Which will determine the focus of the evaluation, the instruments used and the achievement standards. The periodicity and depth with which the academic performance of the students is valued and the scope they will have.

This curricular knowledge is not a repetitive and technical knowledge exclusively since it incorporates reflective processes of the teacher's own re-elaboration. It is the most important core of teachers' professional knowledge. This knowledge has functional value because of its high transference level when used in the action of teaching practice in the classroom.

3) Practical Knowledge develops in real situations at school environments and in the classroom's context. The teacher's conceptions about education that are formed through teaching practice those that guide the teacher performance.
4) Psycho-pedagogical knowledge[11] is the understanding of the theoretical and the generic teaching-learning processes that take place in the school.

The four dimensions of professional teacher knowledge are extremely important, the lack of one of these, or restricted knowledge in any of them, would limit their professional performance in class.

II. Methodology

This descriptive correlational study was carried out on primary school Mexican teachers. A total 170 adult subjects (both male and females) were for in this study.

Study Design: Descriptive and Correlational study
Study Location: This study was carried out in elementary school level in the metropolitan area of Guadalajara, Jalisco, Mexico.
Sample size: 17elementary school teachers.

Data collection instruments

Three tests were applied to the teachers that has been developed and validated by Mexican experts teams. One on their knowledge about language (Spanish), another one on mathematics and another one more on curricular knowledge of the current curriculum in Mexico.The language test (Spanish) consisted of 50 items. The mathematics test was organized with 61 items. Both tests in multiple choice format. The test of the curricular knowledge was constituted by 30 reagents in the format of false and true items.

Procedure methodology

AThe data collection was done in three phases:
1º. The evaluation was made to the teachers about their knowledge in the subject of Language (Spanish)
2o. The knowledge of teachers about mathematics was evaluated.
3rd A test of knowledge about curricular knowledge was applied to elementary school teachers.

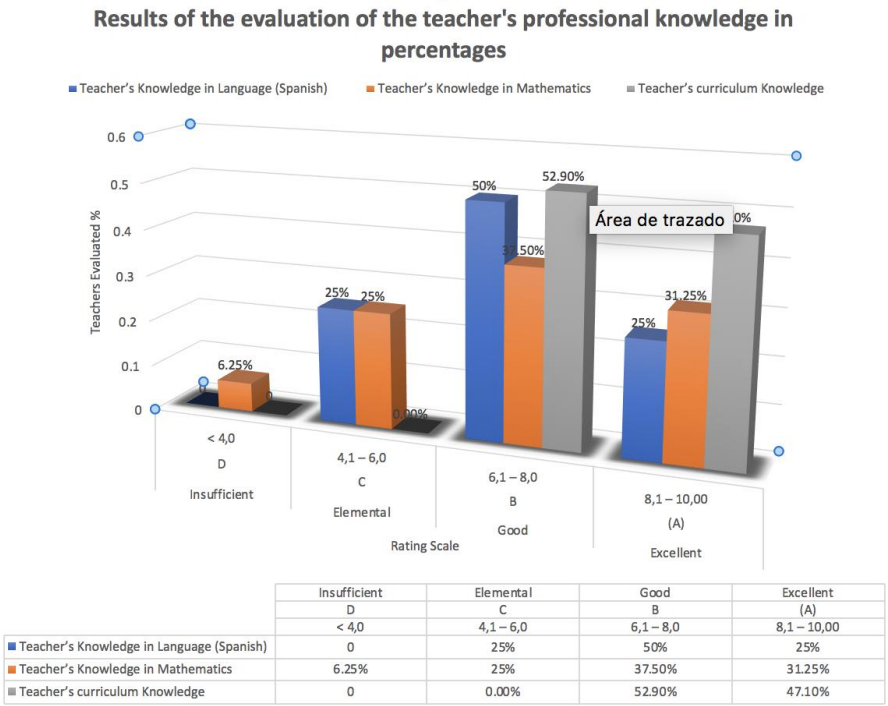
Statistical analysis

The data obtained were analyzed through Non-parametric statistical processing individually and subsequently correlated with each other to check the hypothesisH: There is a direct proportional correlation between the professional knowledge of the subject (language and mathematics) with the curricular knowledge.

III. Results

Table no 1: Shows the average percentage of teacher's knowledge in Spanish, Math and curriculum.

	Insufficient D <4,0	Elemental C 4,1–6,0	Good B 6,1 – 8,0	Excellent (A) 8,1 – 10,00
Teacher's Knowledge in Language (Spanish)	0	25%	50%	25%
Teacher's Knowledge in Mathematics	6,25	25%	37,5	31,25%
Teacher's curriculum Knowledge	0	0	52.9%	47,1%



	Insufficient	Elemental	Good	Excellent
	D	C	B	(A)
	< 4,0	4,1 – 6,0	6,1 – 8,0	8,1 – 10,00
Teacher's Knowledge in Language (Spanish)	0	25%	50%	25%
Teacher's Knowledge in Mathematics	6.25%	25%	37.50%	31.25%
Teacher's curriculum Knowledge	0	0.00%	52.90%	47.10%

There is a direct proportional relationship between knowledge of Spanish and knowledge of mathematics. The correlation index is **0.862376482** this means that teacher who knows or dominates the subject of Spanish, will also dominate the subject of mathematics in the same proportion.

Three quarters of the sample of teachers evaluated dominate in 74% knowledge of the subject of language (Spanish) and mathematics to be taught in primary school. But there is also the position of seeing the glass half empty, and in contrast to the other 75%, three quarters of the teaching staff that dominates little or mediocre knowledge imparted in the classroom. Since the same proportion of teachers that know, there is another that does not possess the disciplinary knowledge that allows a performance above 6.0. The elementary

level is within the range of teachers who have failed. And although it seems that the curve is normally distributed both in the content domain of Spanish and mathematics, this is bad and very serious in the case of teachers who are supposed to know and master the disciplinary content of the subject they teach. It is then necessary to ask serious questions about: How is it that they were hired by the SEP without having the knowledge or possessing them in a mediocre manner? Or the reflection, that when they were hired if the knowledge was fresh and over time they were forgotten, then how can the teachers remember and recover this knowledge?

On the other hand, there is no relationship between the disciplinary knowledge of Spanish and the curricular knowledge of elementary school teachers. The correlation index found was negative-**0.179500184**. Nor is there a relationship between the disciplinary knowledge of mathematics and the curricular knowledge of elementary school teachers. The correlation index found is also negative-**0.202690028**. In both cases the knowledge in these two dimensions are independent and are acquired separately, therefore, they do not influence each other unlike the high correlation found between the disciplinary knowledge of Spanish and mathematics.One explanation is the dynamic[5] nature of professional knowledge, that will be review later.

Language Test. Spanish.

The levels of performance in knowledge of the subject of Spanish of the teachers were below the expectations generated for a professional education. The average percentage of knowledge in Language (Spanish) is 7.41; the maximum percentage was 9.0 and the minimum was 5.4. The distribution curve that is generated from the performance of Spanish knowledge of the teachers studied shows in Table No. 1. Elemental, 25%; Good, 50% and Very Good, 25%.

Although, none of the group of teachers evaluated was in the range of insufficient, what would be interpreted as that teachers do know Spanish.The results are not very satisfactory. 25% of teachers have knowledge of Spanish with performance above 8.1; represents 1 out of 4 teachers who do know what they are teaching.50% of the teachers evaluated master the language knowledge fairly, that is to say between 6 and 8 of qualification that is interpreted as mediocre knowledge or poorly.

Table No. 2 shows the percentage of teachers' performance according to the level of difficulty of the reagents in the test.What teachers do know is to answer reagents of low and medium level of difficulty, which only involve stored knowledge or learned by heart.The type of text that most dominate is the story (77%), followed by the historical essay (70%). Probably because it is a knowledge that traditionally in the teaching of language and history are used more for repetition and identification to capture the attention of children and motivate them towards learning.

Table No2: LanguageReagents' classification by components and difficulty level.

Components of Language/ Difficulty Level	**High**	**Medium**	**Low**	**Total**	**Teacher Performance %**
Syntactic and semantic aspects.	--	5	1	6	46.13%
Understanding and interpretation of texts	2	2	7	11	55%
Knowledge of the writing and spelling system	1	3	1	5	62.5%
Properties and types of texts	1	1	1	3	33.3%
Expositive text: Historical essay	1	5	1	7	70%
Information Text: Interview	--	2	1	3	33%
Information Text: News	--	1	--	1	25%
Literary Text: Story	1	2	7	10	77%
Literary Text: Biography	--	--	1	1	16%
Literary Text: Theater script	2	1	--	3	37%
TOTALS	**8**	**22**	**20**	**50**	
Performance (% hits)	**26%**	**50%**	**77%**	**50%**	

The component most dominated by teachers is the knowledge of the writing and spelling system (62.5%) because traditionally it is a content that has the grammatical focus, which was formerly used in the primary school curriculum. Teachers were able to answer medium-level questions. The comprehension and interpretation of texts is a knowledge that they master but only in the low-level questions. As difficulty levels increase in the questions, they go down in their performance levels.

The professors demonstrated not knowing the properties and types of texts (33.3%), specifically the biography (16%), news (25%) and interview (33%); that are important and minimum indispensable for children to successfully complete basic education. The teachers evaluated have difficulties in the competent handling of texts of general culture (plays, interviews and news) when intellectual operations of analysis of this type of texts are involved.Weaknesses in knowledge are found more in theater scripts (37%) regarding their syntactic and

semantic aspects. But more than the content itself, there is a serious weakness in the handling of complex thinking and the ability to master content in situations of high level of difficulty.

Mathematics Test.

Regarding the disciplinary knowledge of Mathematics, the teachers'performance levels were far below the expectations generated. The average is of 73.05%; the maximum was 96.72 and the minimum was 37.70. The distribution curve that is generated from the performance of the math knowledge of the teachers studied is shown in Table No. 1.In the group of teachers evaluated 6.25% was in the rank of insufficient, which would be interpreted as that these teachers do not have the minimum elementary disciplinary knowledge of mathematics required for the primary level. 25% of teachers have elementary mathematics knowledge between 4 and 6 of qualification; namely, 1 out of every 3 teachers is rejected in this subject (the accumulated of insufficient and elementary is 31.25%).

37.5% of the teachers evaluated dominates the knowledge of mathematics, that is to say between 6 and 8 of qualification. Finally, only 31.25% of teachers have a performance above 8.1; with a degree of excellence, it represents 1 out of 3 teachers who, according to this classification, know what they are teaching.It can be affirmed that 7 of every 10 teachers evaluated dominate the knowledge of mathematics to be taught in elementary school. But it cannot be ignored that 31.25% of teachers are failing in mathematics; this is a high percentage, 7 out of 10 primary school teachers urgently need classes on math content at the primary level. Thus 68.75% of the teaching staff do not dominate the knowledge or they have a mediocre knowledge that teach in class.

Table no3: Shows the performance's index in math test by difficulty level and topics. Between 80 and 100% of teachers evaluated correctly answered 50% of the math test.Only 37.5% of the high-level difficulty items were answered correctly by 80% or more of the group of teachers. This means that what the teachers know is to answer the reagents of low (68.75%) and medium (44.82%) level of difficulty.

Table no3: MathReagents' classification by topics and difficulty level**.**

Mathematics Topics / Difficulty Level	**High**	**Medium**	**Low**	**Total**	**Teachers' performance. %**
Search and organization of information	1	--	--	1	100%
Diagrams and tables	1	--	--	1	100%
Notions of probability	1	2	--	3	33%
Proportionality relations	1	6	3	10	50%
Lines and angles	4	--	--	4	75%
Bodies	--	1	--	1	100%
Flat figures	--	3	2	5	80%
Measurement units	1	2	1	4	50%
Estimation and calculation	3	--	2	5	20%
Graphics	1	--	--	1	---
Measures of central tendency	1	1	--	2	---
Multiplicative problems	--	3	--	3	66%
Multiplication and division	--	--	2	2	50%
Fractions and decimals numbers	1	9	3	13	30.76%
Natural numbers	--	1	3	4	75%
Spatial location: Reference systems	1	--	--	1	--
Spatial location: Representation	--	1	--	1	100%
Total reagents	**16**	**29**	**16**	**61**	
Total Hits	**6**	**13**	**11**	**30**	
Performance (% of hits)	**37.5%**	**44.82%**	**68.75%**	**49.2%**	

Among the topics most mastered by teachers are: Search and organization of information (100%), diagrams and tables (100%), Geometric Bodies (100%), and spatial location: representation (100%). The topics in which they fail the most are: estimation and calculation (20%), Notions of probability (33%) and fractions and decimals numbers (30.76%)the reason for the failure can be found in the difficulty levels of the reagents. This is strange and inadmissible for a teacher who is supposed to be well prepared in the subjects he teaches.

In general terms, the teachers evaluated have serious knowledge gaps in the contents of representation of the information: reading of graphs and estimation of the measures of central tendency. The topic of the spatial location:reference systems do not dominate by the teachers; followed by estimation and calculation of measures, probability and fractional numbers in more complex or high difficulty levels. It is not that teachers are completely unaware of the topic, a probable explanation on this is that they are used to using very simple, concrete and easy to understand examples for children, therefore, the level of demand is low and complex thinking is little developed in these topics.

Curriculum Knowledge Test.

The core of curriculum Knowledge yielded interesting data: the answers of the teachers were above the expectations generated for an education professional. The average performance percentage is 82.40; the maximum percentage was 93.3 and the minimum was 66.7.As shown in Table No. 1. in the group of teachers evaluated the 52.9% obtained a performance among 6.1 to 8.0 score. This means that 52.90%, slightly more than half of the teachers evaluated dominate the curricular knowledge about current plans and study programs. On the other hand, 47.1% of teachers achieved a performance over 8.1rating with excellence grade, that are within the highest range of performance.

Half of the teachers evaluated dominate the curricular knowledge needed to plan the activities, give the competency-based approach to the contents and know the expected learning in the children. The topics that dominate the teachers of basic education are related to the knowledge of the purposes and educational aims that will guide the teaching of the subject established in the curriculum.But the other half of teachers have a mediocre knowledge and then there is an urgent need for continuous training of teachers on the organization of contents in current plans and study programs. The subjects that are difficult for them are related to a deep ignorance of teaching approaches and methods, didactic materials and resources, and assessment strategies of the degree that corresponds to them. They recognize that there is a graduation profile that sets out the desirable traits of the students that are expected to be formed in the course of basic schooling, which will be the result of a training focused on the development of life skills, but there is a lack of knowledge of how to do it, which methodology to apply so that in the future, students can develop in a society that demands new challenges to face a global world.

Only 7 out of 10 teachers recognized that the function of the teacher is to mobilize the knowledge of children, or that they have to pose intellectual, emotional or physical challenges. This result is interpreted as 30% of teachers can continue presenting performances with previous approaches to the current curriculum, running the risk of not achieving the curricular standards or the expected learning with high quality.

In other studies[12] it has been shown that cascade training courses are effective in encouraging teachers to quickly learn the vocabulary of educational reforms and theories involved in current curricula; what was evidenced in the answers that were obtained 100% of the correct answers. However, this modality in training does not achieve the reflection, construction and appropriation of knowledge that impacts the generation of transfers to the teaching practice. It is then necessary to ask serious questions about the training devices used by the SEP to update teachers on such important issues.

IV. Findings and Discussions

From hetero-evaluation to self-management of in-service teacher training

In the absence of a correlation between curricular knowledge and disciplinary knowledge, it was considered to organize the data by grouping them with other criteria.The interest of this studio arises from a basic question: how is it that two dimensions of professional teaching knowledge so important for high quality performance can interact so that the teaching practice has a minimum of coherence? That is the reason that the data were organized in a matrix of two variables, classified into fourdifferent groups with similar intra-group characteristics, establishing the possible relationships between disciplinary knowledge and knowledge of the basic education plan and study programs.

Table no 4: Records the relationship between Disciplinary Knowledge (Language- Sp. and math) and curriculum knowledge. The classification responds an organization from a baseline of the teachers' professional Knowledge in order to design the best teacher training devices.

Y= Curriculum Knowledge					
Excellent 81-100%	(G7)	12.5% Sp. 18.75%Math. (G5)	18.75% Sp. 12.5% Math. (G3)	12.5% Sp. 12.5% Math. (G1)	
Good 61-80%	6.25% Math. (G8)	12.5% Sp. 6.25% Math. (G6)	31.25% Sp. 25% Math (G4)	12.5% Esp. 18.75%Math. (G2)	**Professional Mediocrity**
Elemental 41-60% Insufficient 0-40%					

Insufficient 0-40%	Elemental 41-60%	Good 61-80%**Professional Mediocrity**	Excellent 81-100%	X = Disciplinary Knowledge

Table no4 shows that there was no subject in the studied sample that will validate the existence of a group with insufficient or elementary curricular knowledge about the plan and study programs, these correspond to the two lower quadrants and this is good but not excellent.In contrast, in the upper quadrants are distributed the whole population studied. It can be affirmed that 56.25% of basic education teachers in Mexico have mediocre professional knowledge of curricular knowledge. It can also be affirmed that between 25% and 31.25% of the teaching population of the primary level has insufficient or elementary knowledge (below 60% of grade) of the subjects of Spanish and mathematics. It is unfortunate in education to know that there are teachers who are located in the upper left quadrant (G5, G6, G7, G8); that have serious deficiencies in the handling of central subjects of the Language(Spanish) (12.5%) but even more in mathematics (6.25%) in which they are subjects belonging to the lower left group (G8). The teachers who are located in this quadrant do know very well curriculum knowledge but do not master the disciplinary knowledge.

In the other hand, if the percentages of the four groups that make up the upper right quadrant are added, it can be affirmed that 68.75% in math and 75% in language (Sp) of the teacher population knows and masters both the curricular and subject knowledge.But more is always expected from the teachers, and it is desirable that most of the teachers will be located in the upper right quadrant (G1), who have good management of both the disciplinary knowledge of Spanish and mathematics as well as the curricular knowledge.

At this point of the study, a new relationship emerges from the necessity of linking evaluation process with teaching training process. A point of interest is knowing which specific contents are difficult for teachers and trying to amend them through training paths; in order to ensure their improvement in performance of their teaching practice.This link between both processes would preventthat more generations of children who inherit the gaps of information that teachers have.

A new question arises how to proceed so that teacher training has an impact on the quality of teaching? Once the teachers have been evaluated it is necessary to use the information of the results to provide feedback to each teacher, plan their training according to their needs. Diversify training to such an extent to individualize it so that it really meaningful to the teachers and impact to theirs practices. Two scenarios are described, one that punishes teachers for their low levels of knowledge in response to a punitive evaluation. What happens on a daily basis in several countries. A second scenario would be to consider evaluation as a reference instrument to improve practices. It calls formative evaluation[13].

From this second scenario, the goal is to generate training devices that induce teachers to improve their results in future evaluations, and they will be located in upper quadrants and on the right side.Two types of teacher training emerge,One is design gradual training journeys with precise goals of disciplinary knowledge; that is, mobilize their knowledge horizontally, (in the axis of the X) so that the group of teachers who are located in quadrant (G6) and (G8) self-manage the planning of an individualized training path for them and that in subsequent evaluations are located in the quadrants (G4) and (G2) that are to the right; that is to say, that there is a significant advance of at least one quadrant.

Another type of training devices are dedicated to the mastery of curricular knowledge, will be to establish diversified and concrete goals to "push" the teachers located in groups (G2), (G4), (G6), (G8) so that in The following evaluation is located in the quadrants (G1), (G3), (G5), (G7), that the advance is vertical in each quadrant. Support teachers in their own management of training to get out of the mediocrity of professional knowledge.

A third type of training design is for those more ambitious teachers, in which the teacher could have an advance in an ascending diagonal from left to right in each quadrant. And this procedure would be a constant, continuous and systematic approach to locate the largest number of teachers in the first four quadrants. They would mobilize their knowledge of quadrants (G8) towards (G5), for example, or from (G4) to (G1).

In this way, processes that until now operate in a disconnected manner are articulated. The evaluation of professional knowledge is the first process, thenit continues with the self-management of the competences after they continue with the formative journeys set in motion, to finish with the increase of the quality of teaching as a final goal.With this project of articulation of processes, the revision of the current training strategies will be achieved and move from an approach focused on the training offer to a more flexible approach focused on the demand of specific training for very specific needs faced with a process of change. The training strategies to tailored, with the addition of support of TIC's and an innovative and creative approach are outlined as the fundamental lines of the training actions aimed at the design of new teaching policies.

V. Conclusion

1) The hypothesis is rejected. There is no correlation between disciplinary knowledge of the subject with curricular knowledge. Teachers can master curricular knowledge but not disciplinary knowledge.
2) There is a medium correlation between the disciplinary knowledge of Mathematics and Language (Spanish). Teachers who master one subject also dominate the other in the same proportion.
3) It is more common for teachers to master curricular knowledge better in the range of excellence than the disciplinary knowledge.
4) Disciplinary knowledge is more difficult for teachers to master in the range of excellence, and there are teachers who do not master it and are located in the range of insufficient.
5) There are two ways to consider the evaluation: a punitive and a formative one. The first encourages the discredit of the teaching profession and does not propose to improve the teaching practice. The second is proactive and promotes raising the quality of performance in teaching practice.
6) The relationship between the formative evaluation process and the in-service teacher training process is a contribution to improving the teacher's professional knowledge.

VI. Proposals and recommendations

1. Emphasize the quality of teacher training. The quality of the teachers and their teaching is the most important factor in shaping the results of the students. The main ingredients of teacher quality include "an active evaluation throughout their careers to identify areas of opportunity"[14]. The evaluation is considered during the last two decades as one of the most powerful instruments to assess the degree of quality improvement, on the one hand, and as an incentive to achieve it, on the other. Evaluation is now conceived as a fundamental component of any educational policy and it is considered that the most effective educational systems and institutions have monitoring mechanisms that allow them to identify deficiencies and solve them as soon as possible[15] and a way to do so is to capitalize the evaluative processes, making them eminently formative with the intention of improving the teaching performance.
2. Evaluation is proposed as an instrument to learn and improve educational quality[16], [17] of an eminently formative nature.
3. The evaluation must offer feedback to the teacher evaluated. Their uses can be extended towards a formative intention of the evaluation, if it is ensured that their results will be oriented to create spaces for learning for the teacher. "This means that the teacher evaluated will receive feedback based on his performance"[16, p. 46] in the exam. It is only necessary to analyze the results of the evaluations with more positive and optimistic purposes: One of them would be to diagnose the deficiencies and from there plan a quality training for the teacher. In this way the teacher will receive guidance and suggestions on how to improve; this means "capitalizing" the information obtained from the evaluation for the benefit of the teacher. This return includes even the analysis of each of the evaluation reagents; provide feedback to the teacher on his weak points and supply him with precise knowledge[18]based on his real needs.
4. Develop a profile of the teacher of basic education adjustable to the needs of the school and the students. The idea of what the teacher should know and do must be very clear and precise. The profile of the teacher must combine a strong knowledge of the subject, pedagogical skills, ability to work with a wide variety of students, contribute to the school and have the ability to continue to develop through educational journeys[14]. Training institutions acquire a special relevance and prominence in this task. Only with highly professionalized and trained training will it be possible to give adequate answers to the new needs arising from the information of the formative evaluation.
5. In a proper teacher training can be inferred and detected a series of gradual phases that have to do with contextualized constructivism or situated learning, such as building a 'trainingjourney' according to real needs of knowledge of teachers and meeting individual demands with specific goals such as moving from a quadrant of left end to one on the right side.A interactive and constructive processes setthat are contextualized in diverse formative situations for the teacher that present or formulate interesting problems and develop relevant tasks, aim to generate in which a valid professional knowledge is formed[2, p. 75] and useful in class.
6. Address specific training requirements for teachers and principals. The governments of the countries must not only maintain the role of monitoring, supervise the performance of the basic education teacher, but also use the results of the evaluations and convert them into real training needs and satisfied demands that arise both from the side of the disciplinary knowledge as well as curricular knowledge.
7. Support effective and relevant processes of educational planning and public policies. That those knowledges that are considered basic and fundamental that a teacher must possess are considered for the elaboration of formative trajectories adapted to the needs of knowledge of the teacher.
8. Satisfy the teacher's ongoing training needs. Providing routes towards professionalization including studies according to their training needs, being those of disciplinary knowledge a key element for its initiation.

Giving opportunity to obtain integral formation towards the other types of professional knowledge of the teacher.

9. Consider teacher development as a continuous process. Lifelong learning of teachers[19] involves supporting them more effectively in all stages of their career and provide resources for continuous professional development through the return and feedback of their evaluations with the intention of projecting their Training Journey that affects the quality of their teaching performances.

This new context requires a continual rethinking of the nature and objectives of the evaluation and training processes of classical teachers in order to meet the demands of the school population at all times in a way that is appropriate to their expectations. This transformation requires the introduction of a new academic and administrative culture based on democratic participation, the achievement of results and an evaluation of the professional knowledge of the most dynamic, flexible and innovative teacher, capable of creating added value as well as the knowledge that it evaluates.

References

[1]. P. Liston y K. Zeichner, Formación del Profesorado y condiciones sociales de la escolarización, Madrid: Morata, 1997.

[2]. J. Lopez Ruiz, Conocimiento docente y práctica educativa. El cambio hacia una enseñanza centrada en el aprendizaje., Málaga: Aljibe, 1999.

[3]. M. Neubrand, «Conceptualizations of professional knowledge for teachers o mathematics,» ZDM Mathematics Education, vol. 50, nº 4, pp. 601-612 https://doi.org/10.1007/s11858-017-0906-0, 2018.

[4]. C. Lee Shing, R. MohdSaat y S. Heng Loke, «The Knowledge of Teaching - Pedagogical Content Knowledge (PCK),» Mojes: Malaysian Online Journal of Educational Sciences, vol. 3, nº 3, pp. 40-55 , http://mojes.um.edu.my/index.php/MOJES/article/view/12781,2018.

[5]. S. Guerriero, Pedagogical Knowledge and the Changing Nature of the Teaching Profession., Paris: OECD Publishing, 2017, pp. http://dx.doi.org/10.1787/9789264270695-en.

[6]. L. S. Shulman, «Signature pedagogies in the professions,» Daedalus, vol. 134, nº 3, pp. 52-59 https://doi.org/10.1162/0011526054622015, 2005.

[7]. R. Porlan, R. Martin del Pozo, A. Rivero, J. Harres, P. Azcarate y M. Pizzato , «El cambio del profesorado de ciencias I: Marco teórico y formativo,» Investigación Didáctica, vol. 28, nº 1, pp. 31-46, 2010.

[8]. R. Martin del Pozo y A. Rivero Garcia, «Construyendo un conocimiento profesionalizado para enseñar ciencias en la Educación Secundaria,» Revista Ineruniversitaria de Formación del Profesorado, nº 40, pp. 63-79, 2001.

[9]. D. Zongyi, «Pedagogical Content Knowledge reconceived: Bringing curriculum thinking into the conversation on teachers' content knowledge,» Teaching and Teacher Education, vol. 72, pp. 155-164 https://doi.org/10.1016/j.tate.2017.11.021 , 2018.

[10]. S. Tröbst, T. Kleickmann, A. Heinze, A. Bernholt, R. Rink y M. Kunter, «Teacher knowledge experiment: Testing mechanisms underlying the formation of preservice elementary school teachers' pedagogical content knowledge concerning fractions and fractional arithmetic,» Journal of Educational Psychology, p. http://dx.doi.org/10.1037/edu0000260 , 2018.

[11]. K. Kam Ho Chan y B. Hin Wai Yun, «Developing Pedagogical content Knowledge for Teaching a New Topic: More than teaching Experience and Subject Mtter Knowledge,» Research Science Education, vol. 48, nº 2, pp. 233-265, 2018.

[12]. G. Flores Talavera, Formación de Educadores Holistas. El desarrollo de las habilidaes docentes y sus procesos de transferenca., Guadalajara: Secretaria de Educación Jalisco, 2010.

[13]. N. Pernilla, «What do we know and where do we go? Formative assessment in developing student teachers' Professional learning of teaching science, Teachers and Teaching,» Teachers and Teaching, vol. 19, nº 2, pp. 18-201, DOI: http://10.1080/13540602.2013.741838 , 2013.

[14]. OCDE, La educació hoy. La perspectiva de la OCDE., México: INITE, 2010.

[15]. Tiana , «Calidad, evaluación y estándares: algunas lecciones de las reformas recientes.,» de Calidad, equidad y reformas en la enseñanza., Buenos Aires, Santillana, 2010, pp. 113-123.

[16]. P. Ravela Casamayou, «Elementos para la discusión de alternativas de política de evaluación docente.,» de 5º Congreso Nacional de Educación. Educares el camino, México, SNTE, 2011, pp. 41-54.

[17]. S. Celman, «¿Es posible mejorar la evaluación y transformarla en herramientas de conocimiento?,» de La evaluación de los aprendizajes en el debate didáctico contemporáneo, Buenos Aires, Paidós, 1998.

[18]. M. Gajardo, «La educación tras dos décadas de cambio. ¿Qué hemos aprendido? ¿Qué debemos transformar?,» de Calidad, Equidad y Reformas en la enseñanza., Buenos Aires, Santillana, 2010.

[19]. Mukhtar, Muntholib&Sodiah, «Teachers Career Development: From Work Climate, Commitment and Job Accountability of Madrasah Teachers in Indonesia,» IOSR- JRME Journal Research&Method in Education, vol. 8, nº 4, pp. 26-31, 2018.

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