

Measuring effectiveness on institutional innovation perspectives in Teacher Training Institutions

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Received: 11st of April 2017

Accepted: 28th of April 2017

ABSTRACT. The aim of this research to measure effectiveness on institutional innovation perspectives in Teacher Training Institutions using a scale. The scale is composed of four subscales: Academic Bodies, Standards, Professional Training and Participation with the purpose of analysing prospective conditions associated with crucial training aspects considering conditions that pose legal changes raised from modifications made to the third and 73rd article of the Mexican Constitution. This is a census research in which 610 students took part in from third, fifth and seventh semester of four Teacher Training Institutions in the Sonora State, Mexico. The factor analysis of maximum likelihood with oblimin rotation, presents a greater KMO from .70 to .94. The explained variance is 43 to 73% with Cronbach alpha of .66 to .94. The effectivity parameters and reliability allow to conclude with a scale that can be used to identify the possibility and flexibility that teacher training institutions have for a pedagogical reengineering process.

KEY WORDS. Normal Education, Higher Education, Institutional Assessment.

1. INTRODUCTION

The political, cultural and economic changes that have faced Mexico in the last few years have generated a new series of conditions and requirements on the national educational system. A more global context that is demanding and uncertain, poses the necessity of ensuring quality learning in education that allow effective participation in constant changing social contexts and that have the aim of generating educational basis of new Mexican citizens' generations (Pérez, 2014). Compulsory education (primary and secondary school), has given way for reform implementation and educational policies with a purpose of adapting to the educational systems according to the globalised demands.

Apart from the commitments made in December 2012 in the documents Pacto por México (Pact for Mexico), on the 26th of February 2013 the decree that reforms article three and article 73 of the Constitución Política de los Estados Unidos Mexicanos (constitution laws of the United Mexican States) was published in the Diario Oficial de la Federación (DOF), (Official Journal of the Federation). Article three was reformed in the sections III, VII and VIII and a third paragraph was added, a D clause to the second paragraph of section II and a clause to section IX. Whereas article 73 was reformed in the section XXV (DOF, 2013).

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The modifications were made on the basis that the State is obligated to offer and guarantee compulsory quality and fair education. The constitutional article three specifies that “the State guarantees compulsory quality education in which educational materials and methods, school management, infrastructure and suitability of teachers and managers, guarantee maximum pupil learning achievements” (DOF, 2013, p.1). In that sense, a significant relevance towards the teaching figure is conferred, seen as they have the ability to establish this right by representing a main contact factor and are co-responsible for pupils’ learning (INEE, 2015a).

As a result of the latter, an analysis and reformation of the Servicio Profesional Docente (Teachers’ Professional Service) as well as Sistema Nacional de Evaluación Educativa y al Instituto Nacional para la Evaluación de la Educación (INEE), (National Service of Educational Assessment and National Institute for Educational Assessment) was made. To that last one, autonomy was given as a public organism, own equity and legal personality (Rueda and Nava, 2013). The modifications in the legal framework generated new regulation mechanisms for hiring, promoting ongoing teachers’ services and assessing teachers’ performance as a strategy to ensure skills suitability of teachers with the aim to guarantee an effective teaching practice.

However, policy processes do not have a direct impact on initial teacher training institutions as a contributing factor to guarantee an appropriate profile. One of the effects linked to these modifications is that from the year 2016, Higher Education graduates from different institutions, can apply to work in the public teaching service (DOF, 2016).

Historically, Teacher Training Institutions were the main teacher training institutions in Mexico (INEE, 2015b). The initiatives made from the Educational Reform had an impact on the labour market which for decades was exclusive to Education graduates; they maintained in their symbolic vision commitment and job positions in the public educational working service (Vera, 2011). Teacher training institutions are in a highly competitive situation in which it must show relevance in enrolment profiles of study programs and curriculums to meet an open market in an effective way. The new provisions imply a greater array of skills and abilities for the admission, promotion and ongoing service of compulsory public educations in which the mediating factor is the required skills of suitable teachers proposed by the Teachers’ Professional Service.

This means that Teacher Training Institutions are forced to adjust curriculum designs and enrolment profiles in order to align itself to standard suitability training profiles required by the Teachers’ Professional Service. Study programs and curriculums must have flexible, systematic, dynamic and suitable characteristics according to the educational model in line with compulsory education to maintain a greater probability of meeting the criteria for suitable teaching profiles. According to INEE (2015a), it ratifies the necessity of strengthening the consistency and coherence between knowledge, skills and abilities in teacher training and provision considered indispensable to start teaching.

In INEE (2015b), the IX section of the third constitutional article contains four areas of improvement regarding initial teacher training in compulsory education which are outlined, thus maintaining this consistency: the first guideline is to strengthen the academic organisation in Teacher Training Institutions; the second guideline refers to developing a common framework in higher education for teacher training courses; the third guideline is related to creating a national information system and teacher perspective; the fourth guideline is to organise an assessment system to offer initial teacher training.

These guidelines attempt to establish a link and symmetry between Teacher Training Institutions and Higher Education Institutes (HEI) formed by teachers with the purpose of moving towards

a university model in which support functions are conducted in higher education. Indeed, this would have virtually positive results on Teacher Training Institutions, however, it implies a substantial change on its academic and institutional organisation that could have a negative impact on social relevance of its historic function. Seen as increasing the number of functions, academic tasks could disperse and the quality of work deteriorate (Altbach, 2008).

Teacher Training Institutions used to be attached to the Subsecretaria de Educación Básica y Normal (Secretary of Basic and Regular Education) until 2005 when it was formally transferred to the Dirección General de Educación Superior para Profesionales de la Educación (DGESPE), (General Directorate of Higher Education for Education Professionals, GDHEEP), together with the Subsecretaria de Educación Superior (Secretary of Higher Education) which is an administrative unit part of the Secretaria de Educación Pública (Secretary of Public Education), (Yáñez, Mungarro and Figueroa, 2014; Ducoing, 2013).

The recent incorporation of Teacher Training Institutions to the Secretary of Higher Education in 2005 was not a sufficient step, seen as the required change by teacher training institutions to convert and perform HEI functions need to be radical, boost teaching excellence, encourage and develop investigations and dissemination of culture (Casillas and López, 2006). Nevertheless, according to the GDHEEP (2011), Teacher Training Institutions are focussed on an institutional teaching form and do not develop investigation functions, dissemination nor extension as HEI do.

Teacher Training Institutes must conserve the aim of training teachers which is suitable to modify its organisation and academic dynamics which should comply with collective features, transform its way of management, establish links with other HEI, establish democratic form of government and instruct form of internationalisation, these characteristics should be a priority to consider in HEI (Casillas and López, 2006).

Regarding this research, the focus is on Teacher Training Institutions' systems in the Sonora State in Mexico. This subsystem has eight institutions integrated to it: State Teacher Training Institution (STTI), Hermosillo Higher Education Teacher Training (HHETT), Hermosillo Higher Education Teacher Training in Obregón city (HHETTO), Hermosillo Teacher Training Graduate School in Navojoa city (TTGSN), Physical Education Teacher Training Institute (PETTI), Specialisation State Teacher Training Institute (SSTTI), Regional Centre of Teacher Training (RCTT) and Plutarco Elías Calles Rural Teacher Training Institute (PECRTTI). These institutions offer 13 degrees: Nursery Education, Primary Education, Bilingual Primary Education, Indigenous Nursery Education, Indigenous Primary Education, Special Needs Education, Secondary Education with Spanish, Secondary Education with Maths, Secondary Education with English, Telesecundaria Secondary Education, Physical Education and Education (Yáñez, Vera and Mungarro, 2013).

The system in the Teacher Training Institute in Sonora has a particular feature as it is governed by an organism that coordinates initial and continuous teacher training for teachers in compulsory education since 1992. In 2009, the Teacher Training Institute in Sonora State (TTISS), an organism that substituted the Sonora State Pedagogical Centre (1992-2009) in its function of teacher training institutions coordination. The TTISS has the main goal of serving the steering role of initial, continuous and postgraduate training of primary school teachers in the Sonora state, as well as supervising, coordinating and assessing the management of the academic units of the institute (Yáñez et al. 2013; Yáñez et al. 2014).

In the institutional context of Teacher Training Institutes, there is a culture that norms practices,

values, customs, beliefs and specific conducts. Teachers re-create these elements and contribute to perpetuate institutional culture from a bidirectional relation between the trained and the ones being trained (Morales, 2009). The subject assumes a reality perspective in function with institutional processes transmitted by social interaction in the institutions and self-discipline values (Berger and Luckmann, 2003). Teacher Training Institutes maintain a series of practices and rituals previously mentioned and defined, trainee teachers are forced to acknowledge the existence of these factors and accept them, leaving a small gap to generate different and innovating options to transform institutional conditions.

Therefore, Teacher Training Institutes have the necessity of maintaining innovation processes as well as conserving a high efficiency, especially regarding consistency in developing functions. According to De la Orden, Asensio, Biencinto, González, and Mafokozi's (2007, p.8) work, they argue that consistency in functions can be defined in terms of functionality which is conceptualised as "the ability that instruction shows in adjusting its objectives- and therefore, every action and means it is based on- by complying with the functions that have been assigned by society".

Consistency in system functions is determined by expectations and necessities of the context it corresponds to, in other words, if the systems maintains a high level of efficiency, without satisfying the education necessities and interests of its contexts, the conducted functions would lack in functionality (consistency) and would correspond to claims that were established by such system (De la Orden, 2009).

De la Orden et al. (2002) distinguishes at least four functionality expressions: the first one is categorised as the relation between educational systems entries and expectations, values and social necessities. The second one is represented as a relation between structures and processes in the educational system and expectations, values and social necessities. The third category is defined as a relation between products and system program's results and expectations, values and social necessities. The fourth category is specified as the relation between system aims and objectives and teacher training aspirations, expectations, values, necessities and demands of a society.

Given then diversity that exists in the teaching training system in Sonora, it more likely to improve functionality and increase development quality of substantive functions as long as the posed modifications for the Educational Reform are entitled by who will have affectation, seen as the traditions and defined forms are reproduced in an inertial manner, without questioning the level of functionality that these practices have (Morales, 2009). Therefore, it is necessary that the main roles in these institutions (managers, teachers and students) evaluate and instruct change proposals as they are the one who recognise the specifics and critical elements in which are necessary to come into play in order to improve education standards and favour adequate educational course of development in light of social scenarios.

Based on the above, it is considered imperative to evaluate the evaluative perspective from trainee teachers regarding relevance, flexibility and consistency of an institutional facing new challenges that generate the root of the Educational Reform-captive labour market loss, competitiveness criteria to place graduates in the job market and the necessity to raise quality and functionality of teacher training institutions-. It is essential to enquire about training guidelines and institutional management as niche innovation and change perspective, for example scientific, technology and professional training, and how these effect the possibility of obtaining an idea rating in assessments to join the public educational service, the relevance and suitability of adapting to a higher education model and the effect that this would have on institutional management and functionality.

2. METHOD

This research follows a quantitative order, obeys with a comparative approach, not experimental, on a prospective basis of transversal type, (McMillan and Schumacher, 2005). Information collection was conducted through a questionnaire as a measuring tool which has the aim to measure students' perspectives on the impact of prospective conditions and innovation necessity on functionality indicators, efficiency and as Teacher Training Institutes as knowledge producer, teacher training and culture promotion.

The information was collected in four Teacher Training Institutes located south to Sonora in the town of Navojoa, Etchojoa and Cajeme. Students in their third, fifth, and seventh semester conducted census during term time 2015-2.

2.1 Participants

The participants were made up of 610 students, 266 students were from the Reginal Centre of Teacher Training (RCTT), 87 students were from the Teacher Training Graduate School in Navojoa city (TTGSN), 136 students from Plutarco Elías Calles Rural Teacher Training Institute (PECRTTI) and 121 students from Specialisation State Teacher Training Institute (SSTTI).

2.2. Tool

A questionnaire was used to assess perspective and innovation, it was made up of 34 elements with the purpose of assessing the capacity and flexibility of change and innovation in Teacher Training Institutes, added to this, this research intends to find correlation between entry profiles and suitable teaching profiles proposed by the Teachers' Professional Service and INEE, as well as monitoring the knowledge that students have about the educational model, quality of internal services, teacher training, executive management, transparency and infrastructure.

The questionnaire details five dimensions as basic innovative functions and change prospective: (a) Change of strategy to generate knowledge, (b) Change of standards, (c) Teacher training and profile, (d) Change in teaching practices, (e) Change in institutional management; with answer options using a scale of Likert type of seven levels with low impact to high impact, completely agree to completely disagree and completely unsatisfied to completely satisfied, outlined on the right (1 to 7).

Table 1. Dimension and example of elements on the perspective and innovation scale.

Dimension	Total elements	Element Statement	Example of sub-element	Answer type
1) Change of strategy to generate knowledge	5	Indicate the impact that it would have on scientific and technology training and university extension on the quality of its training process if the following actions take place in the short-term:	Counting only one standard on academic staff, students and only one internal working regulation for all Standards (Academic Units).	Low impact-High impact

2) Change of standards	5	In what way do you consider that Teacher Training Institutes orientated towards the Higher Education context could impact your training as a teacher if the following actions are carried out:	Integrating initial training, investigation and postgraduate in one institutions that a University.	Low impact-High impact
3) Teacher training and profile	3	In what way does the training you receive increase the probability of successfully passing the following assessments?	Entry level assessment	Low impact-High impact
4) Change in teaching practices	5	The functions to prepare the best primary education teachers are enhanced if the following actions are carried out:	Postgraduate studies orientated to teacher training specialists in primary and secondary subjects	Completely disagree-Completely agree
5) Change in institutional management	16	What is your level of satisfaction as a student in terms of participation in the following institutional management actions:	Postgraduate studies orientated to teacher training specialists in primary and secondary subjects	Completely disagree-Completely agree

Note: Prepared by author

3. RESULTS

The perspective and innovation scale were compared with a total of 34 elements. Subsequently a factor analysis was carried out to explore the maximum probability and Oblimin rotation with a total of all elements. Those items with a factor weight of $> .35$ were selected. From this analysis five initial factors were the result that with a 55.83% explain the total variance of the scale. However, when considering the factor weight, conceptual congruence and the breaking point, four one-dimensional factors and one bi-dimensional factor are obtained.

Table 2. Factor analysis results of maximum probability and Oblimin rotation for the perspective and innovation scale in Teacher Training Institutes.

Factor	Items bg.	Item-send	KMO	V. E.	H i g h e r Average (H.A.)	Lower Average (L.A.)	Alpha	D i m e n s i o n A v e r a g e	Ran-ge
1. Change of strategy to generate knowledge	5	5	.81	48.41	R79=5.55 (1.59)	R80=4.62 (2.04)	.81	5.13 (1.28)	1.80
2. Change of standards	5	5	.80	54.43	R93=5.49 (1.69)	R90=4.93 (2.08)	.84	5.16 (1.44)	2.0
3. Teacher training and profile	3	3	.74	73.08	R95=5.39 (1.51)	R96=4.93 (1.68)	.88	5.14 (1.46)	1.67

4. Changes in teaching practices	5	5	.71	43.01	R98=4.43 (2.36)	R101=3.96 (1.99)	.66	4.08 (1.39)	2.20
5. Changes in institutional management	16	16	.94	62.37	R116=3.99 (1.89)	R112=3.60 (2.07)	.94	3.82 (1.38)	2.0

Note: Factor number 5 is of bi-dimensional character, the first factor is related to the quality operation of different institutional services and systems. The second one is related to the efficiency of TTISS as the leading institutions for teacher training in the Sonora state.

In table 1 it can be observed that the change of strategy to generate knowledge factor is composed of five elements, it presents a KMO of .81 and through factor weights it shows to be composed of one dimension. The means and deviations are shown, as well as the range of this dimension. It can be observed that in the scale of seven levels, the lowest average is found in the acceptance range when considering that is it about a scale in a continuum of low and high impact. The range is 1.80, therefore, when considering that the dimension average (5.13), we only have one quartile of the positive side when including all those assessments that consider the changes related to generating knowledge would be of high impact. In general, the participants seem to maintain a perspective linked to high impact facing the necessity to carry out strategy changes to generate knowledge.

In the four remaining scales: Change of standards, Teacher training and profile, Changes in teaching practices and Changes in institutional management, show similar characteristics, particularly in Changes of standards and Teacher training and profile made up of five and three respective elements. It can be observed that the average is 5.16 for the Change of standards factor and 5.14 for the Teacher training and profile factor and with a range that bridges them.

In a similar way, the Change of strategies to generate knowledge factor in which 25% of the surveyed students state that the fourth quartile is biased, which means that students consider that both change of standards and teacher training and profile to be of high impact in pursuit of an improvements in Teacher Training Institutes, whereas a 50% assumes that the impact would light and moderate.

The Changes in teaching practices factor includes elements related to experimental and investigation strategies to generate knowledge and teacher training has the greater sample of disagreement among students and a more standard distribution in comparison with the distribution of the previous dimensions that are biased towards the right with high values of high impact perspective. In this factor, the average value is four and it has a range of two which indicates that there are people who assume to have some kind of disagreements with the changes of teaching practices and 75% of people seem to agree even when the percentage of people who completely disagree is lower than 20% regarding the changes in teaching practices.

The fifth factor has a bi-dimensional character and shows lower levels in satisfaction even when the range is of 1.3. In this dimension the students are asked to give an judge institutional processes that have to do with practices, social service, school services, entry system, teacher training etc. The first factor shows a 50.7% of variance which refers to the assessments that students do about the operation and quality that different services and institutional services offer. The second factor, made up of four elements, shows a 11.5% variance which are orientated to what the students carry out in an assessment in TTISS as the leading institutions for teacher training in the Sonora state.

Subsequently, an analysis of one-way variance (ANOVA) was conducted with the dimension as

the variable and the institutions (Teacher Training Institution) as a factor. It can be observed that the change of standards dimension the statistical value F is higher (12.05) and in the change of teaching practices dimension the statistical value F is lower (.76) (see table 3).

Table 3. ANOVA Variance Analysis, dimension as variable and institutions as a factor

Dimension		Sum of squares	gl	R o o t m e a n square	F	Sig.
1. Change in strategy to generate knowledge	Between groups	66.85	5	13.37	8.53	.000
	Within groups	957.61	611	1.56		
	Total	1024.47	616			
2. Change of standards	Between groups	115.21	5	23.04	12.05	.000
	Within groups	1168.32	611	1.91		
	Total	1283.53	616			
3. Teacher training and profile	Between groups	39.06	5	7.81	3.70	.003
	Within groups	1289.25	611	2.11		
	Total	1328.32	616			

Note: The Change in teaching practices dimension (4) and Change in institutional management (5) were not significant.

According to Levene's statistics, a post-hoc contrast analysis was conducted with Dunnett's C for four dimensions and Scheffé's for one dimension (Change in teaching practices dimension).

(a) The Change in strategy to generate knowledge dimension shows significant differences in the PECRTTI's students' perspectives ($x=4.57$) and in SSTTI's students ($x= 5.08$), TTGSN (Teacher Training Graduate School in Navojoa) ($x=5.34$) and RCTT ($x=5.38$).

(b) In the Change of standards dimensions, there are significant differences between PECRTTI's students' perspectives ($x=4.47$) and students in RCTT ($x=5.54$) and TTGSN ($x=5.35$). There are also significant differences between the students' perspective in SSTT ($x=5.00$) and RCTT ($x=5.54$).

(c) In the Teacher training and profile dimension, significant differences are shown between student's perspective in TTGSN ($x=5.59$) and that of students in RCTT ($x=5.10$) and SSTT ($x=4.81$).

(d) In the Change of institutional management dimension and in the Change in teaching practices dimension (Scheffé's post-hoc) there are no significant differences regarding students' perspectives.

Furthermore, and ANOVA analysis was conducted with the dimension as a variable and the semester (attended by the student) as a factor. It can be observed that for the Change of strategy to generate knowledge dimension the statistical value F is higher (5.11) and that in the Change of teaching practice dimension the statistical value F is lower (1.12) (table 4).

According to Levene's statistics, a Scheffé's post-hoc test was conducted for the four dimensions and Dunnett's C for one dimension (Change of standards).

(a) The Change in strategy to generate knowledge dimension shows significant differences between student's perspectives in the third semester ($x=4.71$) and students in the fifth semester ($x=$

5.16) and seventh semester ($x=5.24$).

(b) In the Teacher training and profile dimension, significant differences are shown between students' perspectives in the third semester ($x=5.55$) and those in the seventh semester ($x=4.97$).

(c) Regarding the Change in institutional management dimension, there are significant differences between students' perspectives in the third semester ($x=4.24$) and students in fifth ($x=3.80$) and seventh ($x=3.72$) semester.

(d) In the Change of standards dimension, the Dunnett's C post-hoc contrast does not show significant differences in students' perspectives.

Table 4. ANOVA variance analysis, dimension as variable and semester as factor.

Dimension		Sum of squares	gl	R o o t m e a n square	F	Sig.
1. Change of strategy to generate knowledge	Between groups	16.801	2	8.40	5.11	.006
	Within groups	1007.67	614	1.64		
	Total	1024.47	616			
2. Change of standards	Between groups	13.87	2	6.93	3.35	.036
	Within groups	1269.66	614	2.06		
	Total	1283.53	616			
3. Teacher training and profile	Between groups	19.53	2	9.76	4.58	.011
	Within groups	1308.78	614	2.13		
	Total	1328.32	616			
5. Changes in institutional management	Between groups	15.61	2	7.80	4.08	.017
	Within groups	1173.29	614	1.91		
	Total	1188.91	616			

Note The Change in teaching practices dimension (4) was not significant.

4. DISCUSSION

The described functionality as a concept and as a measuring model in the education quality model proposed by De la Orden et al. (2007), refers to a retrospective study about operational conditions in different headings that are HEI's aims and describe the areas, aspects and substantive activities in higher education. These are applicable to condition that Teacher Training Institutes have, particularly when they are found below the leadership of an organisation that unites and make possible integration of interests and concerns from all staff (Yáñez et al. 2014), and take part in educational policies focused on higher education.

The inclusion of a prospective type scale on the teacher's professional profile in Teacher Training Institutes arises as an adjustment possibility in a reform and transition context and surely it will be useful to inform institutions about the change possibilities and the orientation that these must take into the institutions as an aim to make the process and activities adequate as HEI must develop. However, Teacher Training Institutes require an organisation and working system with completely different characteristics to the ones that have been developed through history to consolidate itself as a HEI (INEE, 2015b).

The addition of a prospective scale to the traditional system of functionality measurement, generates information about different orientations and change tendencies that could be relevant to improve Teacher Training Institutes. Given the obtained psychometric characteristics in the scale, its only use is feasible in standard institutions. The observed variability through the ranges and obtained dispersions through the student group for each dimension of the scale, allow to distinguish that ever one of them reflect perspective in every institution and in every degree about the possibilities of institutional change and student initiation to promote that change.

The ANOVA analysis shows that students from PECRTTI have a perspective that suggests a greater resistance to improvement modifications and innovation in the Change of strategy to generate knowledge dimension and Change of standards dimension in contrast to the other institutions. It is possible to infer that the perspective that students from PECRTTI show towards these dimensions are associated with characteristics from specific institutional culture, seen as it is a Rural Training Institutions and conserves a male boarding school tradition and its organisation and institutional aims are different to other Teacher Training Institutes in the Sonora state.

These institutional cultural characteristics are related to the context in which it is: PECRTTI is located in middle of indigenous communities. The students assume that generating knowledge and the standards that the institution conserves are effective to solve particular problematic and educational demands in the region.

In terms of the semester analysis as a factor, it can be observed that students in that have more semesters of study show a more critical perspective (fifth and seventh) in contrast with students in their third semester. The students in fifth and seventh semester show a perspective that suggest that the Change in strategy to generate knowledge, Teacher training and profile and Change in institutional management dimensions would have a significantly positive impact, in comparison with students' perspective in their third semester, as they suppose that the changes would have a less significant effect.

The difference in the students' perspective in more semesters studied consists of a reflexive and critical ability about the institutional change conditions, as they have been at the institution longer and socialised more. Added to this, as students progress in their studies, they are faced with the working reality which they must confront when they finish their studies, this allows them to be distinguish some deficiencies in their training that could have a negative effect on their ability to pass all assessments to obtain work in the public education service.

This intensifies openings in the labour market from 2016 (DOE, 2016), as it loses exclusivity for exams students face a high competitive market to obtain a job. This has an influence on students' perceptions on the dimensions that assess the tool and allow us to identify the perspective in a transitioning state towards the new working scheme, seen as the data was obtained during the school period 2015-2 before the first generation of graduates would face the open labour market conditions.

In regards to the reliability and validity parameters, we conclude that it has a scale which can be used to identify flexibility and possibility that institutions have for a re-engineering pedagogical and work process as a means of adjusting to new criteria promoted by the Educational Reform.

According to the factor analysis evidence, it is necessary to include a series of elements that allow a variance percentage greater than 70% and that are able to measure in a prospective way the innovation that will be necessary to master institutional functionality; how to promote different types of recruitment, generate ways to integrate key budgets and different teachers' time schedu-

les to increase the number of full-time teachers and promote academic bodies (Yáñez et al. 2014; Vera, 2011). Furthermore, it is important to generate innovating ideas for the organisation and institutional processes in way which improves its efficiency through a rectorate that will promote relevant conditions for Teacher Training Institutes when transitioning to a university model that will develop substantive functions of a HEI. Finally, pedagogical mastery is the curricular change that needs to be adjusted to the new education law (DOF, 2013) and conditions and parameters that the Teachers' Professional Service demands and INEE.

There is a long way to go in terms of the prospective design scales that would be useful to place subjective student perception around the context of institutional functionality and that give information about the change possibilities and tolerance that this could occur in the different aspects of Teacher Training Institutes institutional life. In that sense, it is fundamental to not only develop new elements, but also new measuring strategies to obtain a more precise estimate about the perception of the different elements of the institution facing the ever-close changes for standard education and in the whole Mexican educational system.

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Appendix

Assessment tool: Measuring scale on institutional innovation perspective in Teacher Training Institutes.

Student questionnaire

Presentation

The current tool is part of a comprehensive study that has the aim of carrying out an Institutional functionality measure on Teacher Training Institutes in the Sonora state.

The purpose of requesting your participating is to know your perception, as a student, regarding the different aspects of you Teacher Training Institute. This will allow us to determine the coherence between the variables associated with the structure and functionality of this institutions, in order to validate an institutional functionality model in Teacher Training Institutes.

We hope to identify the main variables of this model that will allow us to make a proposal to the teacher training institute in the Sonora state that revert a quality improvement in their function.

For that reason, and considering that your opinion is important, we request your collaboration to answer the questionnaire. Your answers will be anonymous and will be dealt confidentially. Please answer the questionnaire fully.

Thank you for you collaboration.

INSTRUCTIONS:

This booklet must not be scratched nor misused as it will be used by other people. Bellow are the questions, your answers must be put in an electronic spreadsheet.

- Read the booklet instructions and answer sheet carefully. If you are unsure of any questions please ask before completing the answer sheet.
- The tool is made up of two parts. Read carefully each question. In questions 1 to 4 general demographic data is requested. In the second part with questions 1 to 34, different aspects of your Teacher Training Institute are addressed. In the multiple choice questions you must choose the answer that best represents your opinion.
- Choose the answer by filling in the oval in the answer sheet in the corresponding space for the selected option. Remember to answer only one option for each question.
- If when revising your answers you change opinion, erase completely the answer you consider incorrect and completely fill in your new selection.
- Check that you answered all questions in their correct place. Checking all questions and every answer selection.

Example: The following question is in the questionnaire

1. The function in Teacher Training Institutes in preparing better primary school teachers are possible if they carry out the following actions:

In order for teachers to be hired they must go through a rigorous entry exam.

A) 1 represents completely disagree and G) 7 completely agree

A) 1	B) 2	C) 3	D) 4	E) 5	F) 6	G) 7
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If your answer is option “B) 2” fill in the corresponding oval in the answer sheet, as shown in the following example.

Answer sheet
<input checked="" type="radio"/> A <input type="radio"/> B <input type="radio"/> C <input type="radio"/> D <input type="radio"/> E <input type="radio"/> F <input type="radio"/> G

STUDENT QUESTIONNAIRE

I.- General Data

1. Which Teacher Training Institute do you study in?

A) TTISS	B) SSTTI	C) PETTI	D) TTGSN	E) RCTT	F) PECRTTI	G)
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2. What is your degree in?

A) Primary Education	B) Nursery Education	C) Physical Education	D) English in Higher Education	E) Spanish in Higher Education	F) Maths in Higher Education	G) Special Needs Education
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3. What is your gender?

A) Male	B) Female
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4. Which age group do you belong to?

A) less than 18	B) 18-19	C) 19-20	D) 20-21	E) 21-22	F) 22-23	G) 23
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II. Aspects of Teacher Training Institutes

• Indicate the impact that scientific, technological and quality of university extension in its formative process would have if the following measure were taken in the short term:

	A) 1 Low impact	B) 2	C) 3	D) 4	E) 5	F) 6	G) 7 High impact
01	Having only one standard for academic staff, students and only one interior work regulation for all Teacher Training Institutes (Academic Units)						
02	Having an Educational Investigation Centre that regulates investigations and post-graduate studies in a centralised way						
03	Integrating all Academic Units including investigation and post-graduate studies under all one entity called University						
04	Developing an Investigation Plan for academic bodies						
05	Reorder post-graduate studies to incorporate at least one Masters and PhD to the National Post-Graduate Quality Program (NPGQP).						

- To what extent do you consider that Teacher Training Institutes that place themselves in the Higher Education context could impact your training as a teacher if the following actions are carried out:

	A) 1 Low impact	B) 2	C) 3	D) 4	E) 5	F) 6	G) 7 High impact
06	Integrating initial training, investigation and post-graduate studies under one institutions that the University category.						
07	That academic bodies and post-graduate academic studies should consist on a substantiation of an Investigation and Post-Graduate Institution.						
08	Developing a standardised system and investigation and post-graduate policy in order to manage adequate criteria in NPGQP, National Investigation System (NIS) and Continuous Professional Development Program (CPDP).						
09	Modifying the status of academic staff and internal work regulation to achieve excellence.						
10	Promoting in the incorporation of teachers with a university profile.						

- To what extent does the training you receive increase your chances of passing the following assessments successfully?

	A) 1 Low impact	B) 2	C) 3	D) 4	E) 5	F) 6	G) 7 High im- pact
11	Entry level assessment to obtain a place.						
12	Teacher promotion assessment (director and supervisor).						
13	Continuity in Professional Service assessment.						

- The function of Teacher Training Institutes in the preparation of the best primary education teachers would be achieved if the following actions are carried out:

	A) 1 Completely disagree	B) 2	C) 3	D) 4	E) 5	F) 6	G) 7 Completely agree
14	Transforming Teacher Training Institutes into Universities.						
15	That all teachers to be hired go through a rigorous entry exam.						
16	That post-graduate studies are orientated towards specialist teacher training in primary and secondary school subjects						
17	That integrated Academic Bodies are orientated towards educational investigation in the learning processes and primary education						
18	That the study plan practices carry out experimental primary education staff that promote education and good educational practices						

To what extent are you satisfied as a student with your participation in the following institutional management actions:

	A) 1 Completely unsatisfied	B) 2	C) 3	D) 4	E) 5	F) 6	G) 7 Completely satisfied
19	The standards that express school regulation and interior labour market.						
20	The educational model and current degree curriculum.						
21	The teacher profile who teaches the modules.						
22	The entry profile of students in Teacher Training Institutes.						
23	Institutional support to strengthen student learning						
24	Placement, social service and degree system.						
25	Quality of school services.						
26	Quality and transparency of the entry system for teachers in Teacher Training Institutes.						
27	The way in which spaces are designed to carry out teacher training.						
28	Library services.						
29	The way in which academic bodies and investigation groups are designed and operate.						
30	Management carried out by the institution.						
31	Support that SSTTI receives to guard academic quality.						
32	Transparency in budget planning and expenses.						
33	Transparency in SSTTI's budget planning and expenses.						
34	Infrastructure to house administrative, academic and ICT functions in the institution.						

Thank you for you collaboration