

## **The Impact of a Quality System Based on the ISO 9001: 2015 Standard in a Higher Education School in Mexico**

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**Author Note:** We are Full-Time Professors for The UANL; we thank the students of the career of Industrial Engineer with minor in Management for their effort in carrying out the projects, which allows the development of these research works and keeps the school with international accreditations.

**Abstract:** In this work we have the goal of capturing the positive impact that the certification of a quality system ruled by the ISO 9001: 2015 Standard has had in a higher education school. As a positive impact we can mention that it has allowed to maintain high customer satisfaction by having the academic processes well defined in terms of their goals and range, allowing enrollment processes and updating of study programs according to customer needs. In addition, it has been possible for all the members of the organization to understand the importance of their activity in the development of the students, allowing the establishment of improvement projects based on the analysis of the results for defined periods; Finally, note that a work environment linked to continuous improvements are generated. With this project we intend to show other higher education schools a future scenario by correctly implementing a quality system based on ISO 9001: 2015.

*Keywords:* ISO 9001:2015, Implementation, Evaluate, Customer

### **1. Introduction**

The companies have used ISO 9001 certifications as a tool to achieve the best performance possible. The higher education institutions took organisms like ABET (Accreditation Board for Engineering and Technology, Inc.) or CACEI (Accreditation Council for Engineering Education) for Mexico. Those organisms work like a quality management system for these higher education institutions, it allows that exist a structure of continuous improvement with guarantee for best practices with available resources.

Quality management is defined as a systematic organization that ensures the implementation of an efficient process to achieve the company's goal (Taylor and Pearson, 1994). The first ISO standard was published in 1987 by the International Organization for Standardization based in Geneva, Switzerland (Abraham et al., 2000). In 2015, the ISO 9001 was reviewed, and the latest version was introduced, namely ISO 9001:2015 (Chiarini, 2017) that emphasized the “process approach” and “risk-based thinking” in order to make the process stronger (Fonseca, 2015).

What is understood by quality in the field of education? Quality education must point towards the results but taking the processes that lead up to them very much into account (Martínez, 2016).

Multiple studies have been conducted to prove that ISO 9001 helps to improve performance of different kind of companies, from manufacturing to service; taking those studies as a basis, we have results that allow ourselves state that a quality management system based on ISO 9001:2015 improves the performance of a higher education school.

## 2. Case of study

In Mexico higher education schools have some key performance indicators (KPI) established by government, we can mention *Student Retention* for this case.

We focus on this KPI, according to the OECD (Organisation for Economic Co-operation and Development), in Mexico only 38 percent of young people who attend university manage to graduate, most of cases of desertion happens at first year. Our school in last 3 years has the next behavior:

Table 1. Student Retention of Higher Education School at Study Program “A”

<b>Period</b>	<b>% Student retention</b>
Jan-Jun 2018 – Jan-Jun 2019	<b>88.00%</b>
Aug-Dec 2018 – Aug-Dec 2019	<b>85.74%</b>
Jan-Jun 2019 – Jan-Jun 2020	<b>85.49%</b>
Aug-Dec 2019 – Aug-Dec 2020	<b>91.41%</b>
Jan-Jun 2020 – Jan-Jun 2021	<b>88.06%</b>
Aug-Dec 2020 – Aug-Dec 2021	<b>80.26%</b>

Table 2. Student Retention of Higher Education School at Study Program “B”

<b>Period</b>	<b>% Student retention</b>
Jan-Jun 2018 – Jan-Jun 2019	<b>80.77%</b>
Aug-Dec 2018 – Aug-Dec 2019	<b>79.91%</b>
Jan-Jun 2019 – Jan-Jun 2020	<b>74.51%</b>
Aug-Dec 2019 – Aug-Dec 2020	<b>89.30%</b>
Jan-Jun 2020 – Jan-Jun 2021	<b>86.67%</b>
Aug-Dec 2020 – Aug-Dec 2021	<b>86.50%</b>

Table 3. Student Retention of Higher Education School at Study Program “C”

<b>Period</b>	<b>% Student retention</b>
Jan-Jun 2018 – Jan-Jun 2019	<b>100.00%</b>
Aug-Dec 2018 – Aug-Dec 2019	<b>91.21%</b>
Jan-Jun 2019 – Jan-Jun 2020	<b>83.33%</b>
Aug-Dec 2019 – Aug-Dec 2020	<b>95.24%</b>
Jan-Jun 2020 – Jan-Jun 2021	<b>94.74%</b>
Aug-Dec 2020 – Aug-Dec 2021	<b>82.18%</b>

Table 4. Student Retention of Higher Education School at Study Program “D”

<b>Period</b>	<b>% Student retention</b>
Jan-Jun 2018 – Jan-Jun 2019	<b>86.54%</b>
Aug-Dec 2018 – Aug-Dec 2019	<b>91.71%</b>
Jan-Jun 2019 – Jan-Jun 2020	<b>88.33%</b>
Aug-Dec 2019 – Aug-Dec 2020	<b>86.46%</b>
Jan-Jun 2020 – Jan-Jun 2021	<b>88.28%</b>
Aug-Dec 2020 – Aug-Dec 2021	<b>81.53%</b>

Table 5. Student Retention of Higher Education School at Study Program “E”

<b>Period</b>	<b>% Student retention</b>
Jan-Jun 2018 – Jan-Jun 2019	<b>79.41%</b>
Aug-Dec 2018 – Aug-Dec 2019	<b>68.60%</b>
Jan-Jun 2019 – Jan-Jun 2020	<b>44.12%</b>
Aug-Dec 2019 – Aug-Dec 2020	<b>76.84%</b>
Jan-Jun 2020 – Jan-Jun 2021	<b>82.35%</b>
Aug-Dec 2020 – Aug-Dec 2021	<b>79.12%</b>

Table 6. Student Retention of Higher Education School

<b>Period</b>	<b>% Student retention</b>
Jan-Jun 2018 – Jan-Jun 2019	<b>85.91%</b>
Aug-Dec 2018 – Aug-Dec 2019	<b>84.83%</b>
Jan-Jun 2019 – Jan-Jun 2020	<b>81.33%</b>
Aug-Dec 2019 – Aug-Dec 2020	<b>89.08%</b>
Jan-Jun 2020 – Jan-Jun 2021	<b>87.86%</b>
Aug-Dec 2020 – Aug-Dec 2021	<b>82.07%</b>

We have a structure to support our principal academic indicators, state in our quality management system as a “Academic Process Teaching”, this process has the next procedures:

- Academic Programs Design
- Operation of the Academic Process Teaching
- Semester Review of Academic Programs

*Academic Programs Design*

This procedure allows our school to achieve the next goal:

*Carry out the design of the current or newly created Undergraduate and Postgraduate study programs, through the collegiate participation of the professors; incorporating the accreditation requirements, needs of the productive and social sector, national and international trends of the disciplines, to achieve the relevance and quality of the educational offer.*

We have 5 study programs that have a re-design after graduate at least a generation, those re-design has the next structure:

1. Socialization
2. Collection of information
3. Information analysis
4. Proposal for a new curriculum and its justification
5. Presentation before the Academic Commission for its opinion
6. Approval process of the new study plan by the H. University Council
7. Opinion on the proposal for a new curriculum
8. Offer of the new curriculum proposal

*Operation of the Academic Process Teaching*

Our goal here is to operate the school under rules established by our institution and government.

All the teachers are constantly improving their class programs, we have formats for helping to carry out this activity and encourage them to do it, we have indicators of second level where we ask for all the changes become at class programs that belong to study program.

At figure 1 we have a format for keep the records where we request authorization to improve a class program. Those records have: date, name of the subject, kind of change (Update, Improvement, New topics), resources that we are going to need to carry out, etcetera.



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