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EVALUATION OF THE TERMINAL EFFICIENCY INDEX IN CURRICULAR TIME OF THE STUDY PLAN 2012-2

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Abstract: The present work analyzes the Terminal Efficiency Index (IET) in terms of completion in curricular time of the educational program (PE) Bachelor of Education Sciences (LCE) of the 2012-2 study plan of the Faculty of Human Sciences (FCH). From ``Universidad Autonoma de Baja California`` (UABC), which has fourteen cohorts that graduate. The IET presented two variants according to the behavior of the student during his academic career from the beginning and end of the program. A longitudinal design of quantitative, exploratory and descriptive group evolution (cohorts) was applied, to gather the data the database of the Integral Institutional Information System (SIII) was used. Of the total number of students who graduated, 39% finished in the regulatory time set by the program $AEregC_t$=424/1089 students. The cohort with the highest IET is 2012-2 with 79% and the one with the lowest proportion is 2019-1 with 7%. The PE presents 61% of students who have not finished and present an active status $ArezC_t$=665/1089.
Keywords: cohort, terminal efficiency, failure, school lag.

INTRODUCTION

In terms of concluding an educational program, it is the moment when an enrolled student completes the total number of credits indicated in a study plan and does so within the stipulated time to be considered as a graduate. For the Ministry of Public Education (SEP, 2019), terminal efficiency is the "number of students who graduate from a certain educational level in a school year, for every hundred students in the initial cohort of the same level" (p. 43). For the university it is important to implement actions that allow increasing graduation and reducing failure as a factor that intervenes in the lag and therefore impacts on the TE.

The LCE educational program of the 2012-2 study plan began its educational offer in August 2012, its starting population being 75 students for this cohort, shared in its two modalities of attention (school and semi-school). Currently there are fourteen cohorts that have graduated from the program according to the curricular time stipulated in the study plan, being the cohorts 2012-2 to 2019-1 with a total of 1089 registered students.

JUSTIFICATION

Today, the activity of Higher Education Institutions (HEIs) revolves around students, in relation to whether we question who and how many are they and their academic performance during their academic life at the university?. At present, there are few studies on career indicators, which is why it is important to monitor the training of students at the university, which makes it possible to identify students who are lagging behind, failing, or dropping out, as well as their own problems. With this intention, this analysis seeks, on the one hand, to have a clear image of the path of the students enrolled in each of the cohorts and, on the other hand, to know what the IET of the LCE program was from 2012-2 to 2019-1, and finally to attend to the recommendations of external organizations in the evaluation of the PE to have updated trajectory indicators that allow measuring and evaluating the student's scholastic performance and the trajectory during their training at the university.

THEORETICAL FOUNDATION

The terminal efficiency is recognized as the proportion of expenses with respect to the income from generation. This way, it seeks to compare the capacity of the higher education system in the conclusion of the studies of the populations in curricular time that are enrolled (Rodríguez & and Hernández, 2008).

The results that yield the terminal efficiency are a direct function of the approval, and an

inverse function of the desertion. The higher the approval, the higher the terminal efficiency. The lower the dropout, the higher the terminal efficiency (Hirsh, 1997).

Study carried out at ``Universidad Autonoma de Nayarit`` to the computer program, aimed at determining the factors that influence the achievement of this indicator, the data mining technique was applied to determine the factors that cause the low graduation rate, it was observed 686 students enrolled from 2003-2009 and by 2014 only 36% (247 students) graduated on time (Torre *et al*., 2016).

The terminal efficiency characterized from the graduation of the students in (Villanueva *et al*., 2022) analyze seven generational cohorts of the Nutrition Degree of a University in the Southwest of México with a population of 350 students who were registered from 2006 to 2012, it was identified that 73.71% (258 students) finished the curriculum obtaining graduation status, of these graduates 92.25% (20 students) finished the curriculum but are behind in the degree.

Likewise (Domínguez *et al*., 2013) they carry out work in the chemical engineering career at a university in Mexico in order to know the variables that intervene in ET, resulting in failure in the first school periods, followed by this. the abandonment that come to impact the ET.

In this sense, the IET or graduation from the educational program in question was analyzed under two dimensions according to the graduation characteristics presented by the students in their academic journey:

- **Regular graduate student** (***AEregC***$_t$), students who finished the program in the prescribed time, pass 100% of the credits in the stipulated curricular time.

- **Irregular graduate student** (***ArezC***$_t$), students who have not yet passed 100% of the credits of the program, have status outside the stipulated curricular time and are still active in the program.

TERMINAL EFFICIENCY

Relationship between the number of students who enroll in a professional career for the first time, forming from this moment on, a certain generational cohort, and those who manage to graduate from it, after accrediting all the compulsory and optional credits of the undergraduate curriculum. each degree, in the times stipulated by the different study plans (UABC-SIII, 2021; Peinado & Jaramillo, 2018; Gómez, 2021).

Clarifications such as this in (Torre *et al*., 2016) about the irregularity of the student in terms of the time established for the conclusion of a certain grade, as well as the impact of the complete or incomplete TE on the ET.

$$ET = (AET * 100)/AC$$

Where:

ET: Terminal efficiency.

AET: Number of students in the cohort who graduate in the time stipulated by the study plan.

AC: Number of students that make up the cohort or generation.

LAG DUE TO FAILURE

This indicator reflects what is generally called the school situation, which can be defined as an optimal, irregular or lagging situation (UABC-SIII, 2021).

$$TRRn = \left(\frac{ACRn}{AC}\right) * 100$$

Where:

TRR$_n$: Gap rate for failure of the generational cohort with lag level n.

TRR$_t$: Total number of students that make up the admission cohort that present a level of lag n.

GOALS

Establish a permanent monitoring plan that allows:

1. Know the critical path of the student during his transit through the university

2. Determine the EIT by program and by cohort

METHODOLOGY

A quantitative, exploratory and descriptive longitudinal group (cohort) evolution design was applied, in which changes over time in subpopulations or specific groups and with specific characteristics are examined, in this case the educational program in which the student is enrolled. student. (Hernández Sampieri R., *et al*., 2014). For the collection of the necessary data, the SIII database of the UABC was used, the system gathers information by semester of the evaluations of each one of the teachers in relation to the summative evaluation of the students,this way and in summary form obtains the quantification of the variables necessary to carry out the analysis (see table 1).

Name	Description	Type	Values
Gender	Student gender	Nominal	M-Woman
			H-Man
Cohorte	Analysis cohort	Nominal	2012-1 a 2019-1
Ingreso	Alumnos que ingresan	Discreet	
Egreso	Graduating students	Discreet	
Activos	active students	Discreet	
IET	Terminal efficiency	Continua	
AEregCt	Regular graduate students	Discreet	
Arez*Ct*	Lagging students or active students	Discreet	

Table 1. Description of variables

Note: Own elaboration.

The purpose of defining the ideal method to describe the IET that allows knowing the evolution of the student in his time at the university. According to González Ramírez (ANUIES), cohort refers to the "set of students who enter a professional career or postgraduate level, in a given year, and who complete a school journey in the normal period in which the study plan prescribes."

POPULATION

In the present work, the cohorts of the 2012-2 study plan that at the moment present graduation were taken into account, which were 2012-2 to 2019-1, made up of 1089 students who registered their formal entry into the study program.

RESULTS

Below is a presentation of the results obtained from the analysis carried out, the cohorts analyzed and the IET described above from the 2012-2 study plan and in particular from the LCE program with fourteen generations with graduation. The analyzed population has a representation of the female gender with 780 and 309 male students (see table 2).

		Gender	
Cohort	Enrolled	Female	Male
2012-2	75	59	16
2013-1	91	70	21
2013-2	77	61	16
2014-1	94	65	29
2014-2	71	55	16
2015-1	66	52	14
2015-2	125	63	62
2016-1	88	70	18
2016-2	90	60	30
2017-1	63	49	14
2017-2	72	48	24
2018-1	69	50	19
2018-2	62	40	22
2019-1	46	38	8
Total	**1089**	780	309

Table 2. Population by gender

Note: Own elaboration with data from the SIII.

The program has the curricular time stipulated in the plan (8 semesters or four years) to pass 100% of the required credits and be considered as a graduate (see table 3).

Cycle	Income	Outcome (ETC_t)			$ArezC_t$
	AIC_t	$AEregC_t$	Female	Male	
2012-2	75	59	50	9	16
		79%	67%	12%	
2013-1	91	45	36	9	46
		49%	40%	10%	
2013-2	77	51	41	10	26
		66%	53%	13%	
2014-1	94	33	23	10	61
		35%	24%	11%	
2014-2	71	25	23	2	46
		35%	32%	3%	
2015-1	66	20	14	6	46
		30%	21%	9%	
2015-2	125	37	27	10	88
		30%	22%	8%	
2016-1	88	23	20	3	65
		26%	23%	3%	
2016-2	90	33	27	6	57
		37%	30%	7%	
2017-1	63	23	20	3	40
		37%	32%	5%	
2017-2	72	25	21	4	47
		35%	29%	6%	
2018-1	69	20	16	4	49
		29%	23%	6%	
2018-2	62	27	20	7	35
		44%	32%	11%	
2019-1	46	3	2	1	43
		7%	4%	2%	
Total	**1089**	424	340	84	665
Percentage		38.9%	31%	8%	61%

Table 3. Terminal efficiency, 2012-2 study plan.

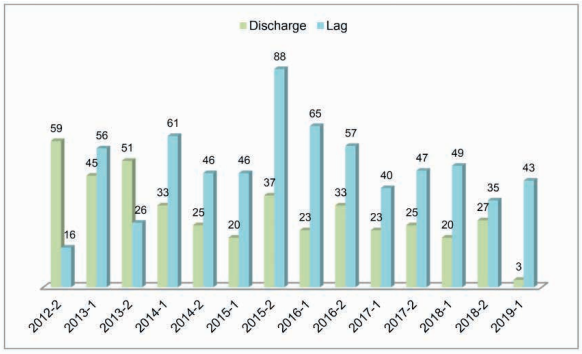
Note: Own elaboration with data from the SIII.

AIC_t= Students entering cohort ***t***.

$AEregC_t$= Students who graduate regularly from cohort ***t***.

$ArezC_t$= Students who fail to complete the program in the stipulated time.

It is observed that the IET of the LCE program in the stipulated curricular time was 39% only (424/1089 students) managed to graduate regularly in the curricular time that the plan marks, of this population 61% (665/1089 students) present a lag, they have not yet completed the PE. In particular, with 79% (59/75), the cohort with the highest IET was 2012-2, on the contrary, 2019-1 with 7% (3/46), it is considered that the most recent cohorts have less discharge. Likewise, it can be seen that the lag behaved inversely in the 2019-1 cohort with 93% and the 2012-2 cohort presented the lowest lag with 21%, as can be seen both in Table 3 presented above and in Graph 1.



Graph 1: Relation of the egress and the lag of the 2012-2 study plan.

Note: Own elaboration with data from the SIII.

CONCLUSIONS

According to the results analyzed in the previous section, it is important to highlight that the IET 38.9% alone (424/1089 students), is well below 50%, which is worrying and strategies must be implemented that allow students to increase their approval and comply with minimum workloads that allow them not to fall behind in school, with timely follow-up that allows knowing the cases and giving them due follow-up, these measures will help reduce the lag and therefore increase terminal efficiency. Contrary to the ET, the lag of students is high 61% (665/1089), normal behavior

with these indicators of school trajectory, the inverted relationship of graduated students with lagging students, is due to the time as they are closing or finishing the PE according to the stipulated curricular time, the 2012-2 cohort concludes in 2016 1, while the 2019-1 cohort its period to finish is 2022-2, in this sense with more time after having completed the program the ET increases and the lag decreases and therefore on the contrary, at a shorter time, the ET decreases and the lag increases.

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