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Artículos Científicos

Reprobación, síntoma de deserción escolar en licenciatura en Nutrición de la Universidad Autónoma del Carmen

*Reprobation, Symptom of School Dropout in Nutrition Degree from the
Universidad Autónoma del Carmen*

*Fracasso, sintoma de abandono escolar em Bacharelado em Nutrição na
Universidade Autônoma de Carmen*

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Resumen

La reprobación es la decisión de un profesor o jurado respecto al deficiente desempeño académico de un alumno, por lo tanto, no se le conceden los créditos correspondientes y debe repetir el curso o volver a realizar el examen. Las implicaciones de la reprobación son graves, ya que generan baja autoestima y se consideran como una variable asociada con la deserción escolar. El objetivo de esta investigación fue determinar la relación entre el índice de reprobación e índice de deserción escolar en los estudiantes de licenciatura en Nutrición de la Universidad Autónoma del Carmen. El presente estudio tiene un enfoque cuantitativo, de alcance exploratorio, descriptivo y diseño no experimental con una delineación transversal. La determinación del índice de reprobación y la tasa de deserción se obtuvo con estadística descriptiva y la correlación entre la reprobación y la deserción escolar se determinó con la prueba de Pearson. Se consideró la población total de 391 estudiantes que ingresó a dicho programa entre agosto-diciembre 2010 y agosto-diciembre 2017, con la que se determinó el índice de reprobación. De los resultados obtenidos se identificó que el índice de reprobación general encontrado fue de $24.24 \% \pm 12.68$ y con una media de apertura de cursos de 8.79 ± 3.06 . El comportamiento identificado por los estudiantes ante la deserción mostró una media de 2.35 ± 0.98 ciclos avanzados, una media de 8.6 ± 3.15 cursos aprobados y una media 6.46 ± 2.74 de cursos reprobados al momento de desertar. La correlación entre el índice de desertores por cohorte generacional (2010 a 2017) y el índice de reprobación por cohorte generacional (2010 a 2017) en estudiantes de la licenciatura en Nutrición, a través del coeficiente de correlación de Pearson, fue de 0.939 y un valor de $p = 0.001$. Asimismo, 96 % de los estudiantes desertores en sus trayectorias escolares tienen entre 40 % y 80 % de cursos reprobados. Un fenómeno identificado en el presente estudio fue el comportamiento de un estudiante desertor con respecto a los ciclos promedios que avanza y el promedio de cursos aprobados y reprobados; se encontró una media de 2.35 ± 0.98 ciclos avanzados, una media de 8.6 ± 3.15 cursos aprobados y una media 6.46 ± 2.74 de cursos reprobados al momento de desertar. Las implicaciones de un alto índice de reprobación son graves y se pueden considerar como una variable asociada con la deserción escolar, lo cual puede suponer un problema de calidad educativa.

Palabras claves: abandono escolar, estudiantes universitarios, índice reprobación.

Abstract

Reprobation is defined as the judgement of a teacher or jury given to a student due to poor academic performance. Due to this situation, academic credits are not awarded to the students, so they must, in consequence, repeat a course or take another try on the test. Failure implications are dire, since they tend to build low self-esteem, and is closely related to school dropout. Determining the relationship between the reprobation and dropout rates of students at the Nutrition Bachelor's Degree Program (NBDP) at the Universidad Autónoma del Carmen is the main goal of this paper. This research has a non-experimental, quantitative, exploratory and descriptive approach, with a cross delineation. To determine reprobation and dropout rates descriptive statistics were applied; while Pearson's Chi-squared test was used to determine failure to dropout rates correlation. The totality of the 391 students enrolled in the NBDP between August 2010 to December 2017 were used to calculate the reprobation rate. The over-all reprobation rate found on the NBDP is $24.24\% \pm 12.68$ and an 8.79 ± 3.06 opened courses arithmetic mean. The overall behavior regarding academic advance on dropout students presented an arithmetic mean of 2.35 ± 0.98 academic cycles, they also presented an arithmetic mean of 8.6 ± 3.15 of courses approved and an arithmetic mean of 6.46 ± 2.74 of courses failed at the point where they dropped school. The correlation among dropout rates and reprobation rates for the NBDP 2010 – 2017 generational cohorts using the Pearson's Chi squared test was of 0.939 with a 0.001 value for *p*. Also, 96% of school dropouts has a course reprobation rate between 40% to 80%. This implies that reprobation rates are dire since they are directly related to school dropout, which can also evidence a problem in education quality.

Keywords: dropping out, university students, reprobation.

Resumo

O fracasso é a decisão de um professor ou júri em relação ao fraco desempenho acadêmico de um aluno; portanto, os créditos correspondentes não são concedidos e devem repetir o curso ou refazer o exame. As implicações do fracasso são graves, pois geram baixa autoestima e são consideradas uma variável associada ao abandono escolar. O objetivo desta pesquisa foi determinar a relação entre a taxa de reprovação e a taxa de abandono em estudantes de graduação em Nutrição da Universidade Autónoma de Carmen. O presente estudo possui abordagem quantitativa, exploratória, descritiva e não experimental, com delineamento transversal. A determinação da taxa

de reprovação e do abandono foi obtida com estatística descritiva e a correlação entre insucesso e abandono escolar foi determinada com o teste de Pearson. Foi considerada a população total de 391 estudantes que ingressaram no programa entre agosto e dezembro de 2010 e agosto e dezembro de 2017, com os quais foi determinada a taxa de reprovação. A partir dos resultados obtidos, identificou-se que o índice geral de reprovação encontrado foi de $24,24\% \pm 12,68$ e com uma abertura média de curso de $8,79 \pm 3,06$. O comportamento identificado pelos alunos antes do abandono mostrou uma média de $2,35 \pm 0,98$ ciclos avançados, uma média de $8,6 \pm 3,15$ cursos aprovados e uma média de $6,46 \pm 2,74$ de cursos reprovados no momento do abandono. A correlação entre a taxa de evasão por coorte geracional (2010 a 2017) e a taxa de reprovação por coorte geracional (2010 a 2017) em estudantes de graduação em Nutrição, através do coeficiente de correlação de Pearson, foi de 0,939 e valor $p = 0,001$. Da mesma forma, 96% dos alunos que abandonam a escola em suas trajetórias escolares têm entre 40% e 80% dos cursos reprovados. Um fenômeno identificado no presente estudo foi o comportamento de um aluno que abandonou a escola em relação aos ciclos médios que estão avançando e à média de cursos aprovados e reprovados; foram encontrados uma média de $2,35 \pm 0,98$ ciclos avançados, uma média de $8,6 \pm 3,15$ cursos aprovados e uma média de $6,46 \pm 2,74$ dos cursos reprovados no momento da deserção. As implicações de uma alta taxa de reprovação são graves e podem ser consideradas como uma variável associada ao abandono escolar, o que pode ser um problema de qualidade educacional.

Palavras-chave: evasão, estudantes universitários, taxa de reprovação.

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Introduction

The term school dropout has been defined as dropping out of school activities before completing any degree or educational level (Torres, Acuña, Guadarrama, Solís and Flores, 2017). This phenomenon is controversial within higher education institutions, since there is no specific cause to which it can be attributed, as it is a multifactorial behavior (Fallis and Opotow, 2003). The Report of the National Survey of Attrition in Higher Secondary Education (Ministry of Public Education [SEP] - Council for the Evaluation of Higher Middle Education [Copeems], 2012) indicates that the main causes of school dropout are: 1) poor connection between the school and the interests of the student, 2) insufficient parental involvement, 3) personal reasons (need to have



a job and get money; become a mother or father; be in charge of caring for a relative , among others) and 4) disapproval and lack of capacity to overcome academic challenges. The latter cause is confirmed by Sánchez (2015), Mendoza (2016) and Castellanos, Alvarado and Villamil (2018), a factor that often leads to dropping out of school due to the student's self-perception of failure and the conceptualization that their Low performance will not allow you to continue in the following periods.

Failure is the decision of a teacher or jury regarding the poor academic performance and school work of a student (course or exam), therefore, the corresponding credits are not granted and must repeat the course or re-take the exam (Sánchez, 2015). In other words, the failing students are that part of the school population subject to a curricular program, but who, for not having fulfilled the academic requirements demanded in the curriculum, are not in a position to be promoted to the grade or level Immediate superior (Mendoza, 2016). According to Piratoba and Barbosa (2013), the implications of rejection are serious, since they generate low self-esteem and can be considered as a variable associated with school dropout.

Higher education schools have a high failure rate, which shows a problem of educational quality. Achieving productivity in education requires the analysis of procedures and factors that affect the teaching-learning process (Flores, Camacho and Ontiveros, 2013). The educational program of degree in Nutrition (PELN) attached to the Faculty of Health Sciences (FCS) of the Autonomous University of Carmen (Unacar) is not exempt from this phenomenon, since since it was created, in 2002, it has been presented, without generating analysis and attention strategies. Since its creation to date, the PELN has made three updates, the last one in 2010, aligned with the launch of the current Acalán Educational Model, which is focused on lifelong learning, with a focus on competencies, which offers students comprehensive and relevant training, with flexible curricula and a philosophy of lifelong education. Its main features are:

- It focuses on student learning;
- Promotes meaningful learning, and
- The curricular organization contemplates three types of competences: 1) generic competences, 2) interdisciplinary competencies and 3) specific competencies.

Generic competences constitute the common basis in vocational training through the educational programs at Unacar, and are systemic or integrative, transversal and transferable. These competences are the following: 1) health culture, 2) communication and social relationship, 3)

entrepreneurial culture, education and transdiscipline, 4) university, science and humanism, 5) education for sustainability and 6) mastery of the technologies of Information and communication.

Regarding the courses that contribute to achieving generic skills, 82% are located in the first four cycles of the race. During these the PELN student is enrolled together with students of another educational program of the Unacar.

Interdisciplinary competencies identify the training of students of a faculty based on the disciplinary areas that form the educational programs. Its characteristics are similar to the generic ones. The FCS establishes how these are the following: 1) health promotion and 2) social responsibility in health; competencies that will identify all the general actions that a health professional acquires and develops.

In the courses that contribute to these competitions, the PELN student takes the class with students of the various educational programs of the FCS (Nursing, Clinical Psychology, Physiotherapy, Medicine and Physical Education and Sports).

The specific competences are those of the profession, with which the student is prepared for a specific work or professional performance. The PELN includes among these types of competencies the ones put here: 1) individual and collective comprehensive nutritional assessment and diagnosis, 2) nutritional and food intervention, 3) nutritional orientation, 4) administration of food services and 5) comprehensive use and processing of foods. The above allows to reach the graduation profile of the Bachelor in Nutrition by addressing the areas of performance that the Mexican Association of Members of Faculties and Schools of Nutrition (Ammfen) establishes. To achieve the specific competences, the PELN classified the courses that contribute to the development of these in 1) basic of the career, 2) professionalizing, 3) optional and 4) terminals.

The PELN was evaluated for the first time by the Inter-Institutional Committees for the Evaluation of Higher Education (Ciees) in 2010, and obtained Level 1 with a validity of five years; In 2016 he received the visit for the follow-up evaluation and was granted the same level for three more years. In turn, in 2016, it achieved the status of Accredited Educational Program for a period of five years by the National Council for the Quality of Educational Programs in Nutritionology (Concapren). As a result of these external evaluation processes, recommendations have been generated to the PELN for the quality assurance of education. Thus, the subject of academic trajectory, specifically attrition (Torres et al., 2017) and rejection was observed as an area of

opportunity in both exercises. One of these recommendations is to characterize and implement strategies to reduce failure rates and, therefore, reduce school dropout.

Therefore, this work has the following objectives: 1) determine the failure rate, 2) determine the dropout rate and 3) analyze whether there is a relationship between the failure rate and dropout rate in PELN students Unacar, from August-December 2010 to August-December 2017, to have more information to obtain indicators that support the strategic plan for updating the educational program.

Methodology

Prior to initiating this investigation, written authorization was requested from the manager (coordinator) of the PELN of the FCS of Unacar, mentioning the general objective and the particular purposes of the study. Subsequently, it was submitted for evaluation by the bioethics committee, where conflicts of interest were ruled out and a positive opinion was obtained. The study was coordinated by the discipline group "Nutrition, Education and Administration" of the FCS PELN.

Research design

The present study has a quantitative approach, exploratory, descriptive scope and non-experimental design with a transversal delineation. The main purposes were: 1) determine the school failure rate for each competency declared in the curricular organization, 2) determine the dropout rate in the PELN, 3) determine the average cycle advanced by dropout students, average approval and disapproval of courses and 4) determine whether school failure is a symptom of school dropout.

Population

To obtain the school failure rate, the population was constituted with 391 students enrolled in the PELN from the August-December 2010 school period to the August-December 2017 period.

To determine average cycles, approval, disapproval of average courses and the relationship between failure and dropout, the population of 104 students with definitive withdrawal was taken as a population.

Sources for obtaining and / or collecting information

The data used in this research were provided by the institutional computer systems of the School Control System (SUCE) and the Executive Portal, both with access from the PELN manager.

Research instrument and statistical analysis

The records exported from the institutional systems to a database in Excel were analyzed. The information collected was processed and analyzed with the support of the Statistical Package for the Social Sciences version 20 software. To determine the failure rate and attrition rate, it was presented in percentage, frequencies, means, standard deviation, maximum and minimum values; The Pearson test was applied to determine the correlation between school failure and dropout.

Results

Determination of the failure rate

For the determination of the failure rate, the totality of 391 students who entered the PELN from the period August-December 2010 to August-December 2017 was taken. The general failure rate found in the PELN is $24.24\% \pm 12.68$ and an average of opening of courses of 8.79 ± 3.06 .

Table 1 shows the failure rate in relation to courses that contribute to generic skills, with an average of $25.69\% \pm 12.24$ of failure and an average of courses open 11.16 ± 2.88 .

Tabla 1. Índice de reprobación: cursos que contribuyen a las competencias genéricas



Cursos	Inscritos					Aprobación de cursos		Reprobación de cursos	
	NVCA*	f	\bar{x}	Máx.	Mín.	f	%	f	%
Razonamiento lógico	13	334	25.69 ± 19.47	56	3	191	57.19	143	42.81
TMI**	15	306	20.40 ± 18.56	52	1	207	67.65	99	32.35
TCOE***	14	403	28.79 ± 21.68	59	2	345	85.61	58	14.39
Desarrollo sustentable	14	411	29.36 ± 23.92	63	1	325	79.08	86	20.92
Inglés I	13	192	14.77 ± 6.60	32	5	103	53.65	89	46.35
Inglés II	12	112	9.33 ± 6.02	22	2	65	58.04	47	41.96
Inglés III	11	93	8.45 ± 3.84	16	1	70	75.27	23	24.73
Inglés IV	10	51	5.10 ± 2.02	10	2	43	84.31	8	15.69
Emprendedores	9	154	17.11 ± 11.13	36	1	130	84.42	24	15.58
TE****	5	9	1.80 ± 0.74	3	1	7	77.78	2	22.22
TFTI*****	11	132	12.00 ± 8.14	34	3	98	74.24	34	25.76
Prácticas profesionales	7	90	12.86 ± 12.86	28	2	85	94.44	5	5.56

*Number of times the course was opened.

** Technology and information management.

*** Oral and written communication workshop.

**** Entrepreneurs workshop.

***** Workshop for early training of researchers.

Source: self made

Table 2 shows the failure rate in relation to the courses that contribute to interdisciplinary skills; an average of 31.28 ± 13.38 was determined, with an average opening of 11.78 ± 1.97 .

Tabla 2. Índice de reprobación: cursos que contribuyen a las competencias interdisciplinarias



Cursos	Inscritos					Aprobación de cursos		Reprobación de cursos	
	NVCA*	f	\bar{x} y D.E.	Máx.	Mín.	f	%	f	%
Actividad física	10	404	40.40 ± 19.61	62	4	350	86.63	54	13.37
Educación y promoción de la salud	8	274	34.25 ± 13.97	48	3	225	82.12	49	17.88
Socioantropología	13	403	31.00 ± 23.25	62	1	328	81.39	75	18.61
Anatomía y fisiología II	11	302	27.45 ± 16.13	49	1	189	62.58	113	37.42
Bioquímica básica	14	332	23.71 ± 17.64	53	4	205	61.75	127	38.25
Anatomía y fisiología I	13	467	35.92 ± 21.09	60	3	267	57.17	200	42.83
Bioestadística básica	13	245	18.85 ± 12.96	49	3	121	49.39	124	50.61

* Number of times the course was opened.

Fuente: Elaboración propia

Tables 3, 4, 5 and 6 show the failure rates of the courses that contribute to the generation of specific competencies, where a failure rate of 22.02 ± 11.99 was found, with a mean course opening of 6.96 ± 1.46 .

Table 3 shows only the behavior of the courses that contribute to the specific competences of the basic area of the career, having a failure average of 30.77 ± 10.04 , with an average of opening courses of 7.83 ± 1.21 .

Tabla 3. Índice de reprobación: cursos que contribuyen a las competencias específicas. Básicas de la carrera



Cursos	Inscritos						Aprobación de cursos		Reprobación de cursos	
	NVC A*	N	\bar{x}	\pm	Má x.	Mín.	N	%	N	%
Nutrición básica	10	319	31.9 0	14.9 4	48	4	2 6 6	83.39	53	16. 61
Administración general	8	251	31.3 8	10.1 3	41	14	2 0 8	82.87	43	17. 13
Nutrición y metabolismo	8	273	34.1 3	8.83	43	21	1 7 7	64.84	96	35. 16
Taller de cálculo	7	277	39.5 7	6.98	49	26	1 7 5	63.18	102	36. 82
Epidemiología	8	184	23.0 0	16.0 3	53	1	1 1 6	63.04	68	36. 96
Farmacología de la nutrición	6	224	37.3 3	7.93	52	27	1 3 0	58.04	94	41. 96

* Number of times the course was opened.

Fuente: Elaboración propia

Table 4, on the other hand, shows only the behavior of the courses that contribute to the specific competencies of the professionalizing area of the career, having a disapproval average of 21.04 ± 9.22 with an average of courses opening 6.73 ± 1.11 .

Tabla 4. Índice de reprobación: cursos que contribuyen a las competencias específicas.

Profesionalizante



Cursos	Inscritos						Aprobación de cursos		Reprobación de cursos	
	NVC A*	f	\bar{x}	DE	Máx.	Mín.	f	%	f	%
ASA**	6	2 1 3	35.5 0	2.87	39	6	168	78.8 7	45	21. 13
Alimentación y sociedad	7	2 5 1	35.8 6	9.44	51	25	212	84.4 6	39	15. 54
Arte culinario	7	2 5 2	36.0 0	7.67	45	23	216	85.7 1	36	14. 29
Ciencias de los alimentos	6	1 8 9	31.5 0	4.23	36	23	164	86.7 7	25	13. 23
Dietoterapia I	7	1 4 6	20.8 6	10.9 7	36	6	107	73.2 9	39	26. 71
Dietoterapia II	7	1 2 4	17.7 1	6.51	28	9	112	90.3 2	12	9.6 8
IAN***	5	1 5 5	31.0 0	5.54	38	23	105	67.7 4	50	32. 26
MTA.****	10	2 9 4	29.4 0	13.7 9	50	9	211	71.7 7	83	28. 23

Nutrición clínica I	6	1 4 3	23.8 3	9.08	34	11	90	62.9 4	53	37. 06
Nutrición clínica II	8	1 3 9	17.3 8	8.48	30	4	105	75.5 4	34	24. 46
Nutrición clínica pediátrica	6	1 5 0	25.0 0	8.28	36	10	99	66.0 0	51	34. 00
Nutrición comunitaria I	7	1 7 6	25.1 4	13.6 6	44	2	119	67.6 1	57	32. 39
Nutrición comunitaria II	6	8 7	14.5 0	7.58	25	3	83	95.4 0	4	4.6 0
Nutrición en el individuo sano	7	1 9 9	28.4 3	8.05	38	16	160	80.4 0	39	19. 60
PLSA*****	8	3 5 5	44.3 8	18.6 1	9	8	282	79.4 4	73	20. 56
Psicología de la nutrición	7	1 8 5	26.4 3	11.2 4	37	1	165	89.1 9	20	10. 81
Seminario de tesis	5	1 3 6	27.2 0	2.99	31	22	110	80.8 8	26	19. 12
TEEN*****	7	2 2 5	32.1 4	11.0 3	42	6	163	72.4 4	62	27. 56

Tecnología de alimentos	6	1	28.8	6.71	35	16	158	91.3	15	8.6
		7	3					3		7
		3								

*Number of Times the Course opened.

** Food service administration.

*** Research applied to nutrition

**** Microbiology and food toxicology.

***** Production, legislation and food safety.

***** Nutrition status assessment workshop.

Fuente: Elaboración propia

Table 5 shows only the behavior of the courses that contribute to the specific optional competences of the career, having a mean of failing 34.06 ± 9.58 .

Tabla 5. Índice de reprobación: cursos que contribuyen a las competencias específicas. Optativas

Cursos	Inscritos						Aprobación de cursos		Reprobación de cursos	
	NVCA*	f	\bar{x}	\pm	MÁX.	MÍN.	f	%	f	%
Evaluación sensorial de los alimentos	7	192	27.43	12.46	40	2	145	75.52	47	24.48
Nutrición en el deportista	2	55	27.50	7.50	35	20	31	56.36	24	43.64

*Número de veces que el curso se apertura.

Fuente: Elaboración propia

Table 6, finally, shows only the behavior of the courses that contribute to the specific terminals of the race, having a mean of failing 2.68 ± 2.34 .

Tabla 6. Índice de reprobación: cursos que contribuyen a las competencias específicas.

Terminales

Cursos	Inscritos	Aprobación	Reprobación
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							de cursos		de cursos	
	NVCA*	f	\bar{x}	\pm	Máx.	Mín.	f	%	f	%
Prácticas hospitalarias	8	80	10.00	8.36	28	1	80	100	0	0.00
Prácticas comunitarias	7	86	12.29	8.71	27	1	84	97.67	2	2.33
Prácticas de servicios de alimentación	8	105	13.13	10.38	28	1	99	94.29	6	5.71

*Número de veces que el curso se apertura.

Fuente: Elaboración propia

Attrition Rate Determination

Table 7, on the other hand, shows the dropout rate found in the population and study period.

Tabla 7. Comportamiento de la deserción escolar en el PELN

Generación	Ingreso		Deserción				
	N	%	n	% Gen	% Total	Hombres	Mujeres

						n	%	n	%
2010	57	14.58	22	39 %	21.15	5	5	17	16.35
2011	58	14.83	22	38 %	21.15	6	6	16	15.38
2012	58	14.83	23	40 %	22.12	1	1	22	21.15
2013	41	10.49	7	17 %	6.73	2	2	5	4.81
2014	52	13.30	10	19 %	9.62	2	2	8	7.69
2015	54	13.81	11	20 %	10.58	1	1	10	9.62
2016	33	8.44	7	21 %	6.73	1	1	6	5.77
2017	38	9.72	2	5 %	1.92	0	0	2	1.92
Totales	391	100	104	27 %	100.00	18	17.31	86	82.69

Fuente: Elaboración propia

Table 8 shows the behavior of the average cycles advanced by a deserter and the average of approved and failed courses: an average of 2.35 ± 0.98 advanced cycles, an average of 8.6 ± 3.15 approved courses and an average of 6.46 ± 2.74 of failed courses at the time of deserting.

Tabla 8. Ciclos promedios avanzados y promedio de cursos aprobado y desaprobados al momento de desertar

	Ciclos avanzados	Aprobación de cursos	Reprobación de cursos
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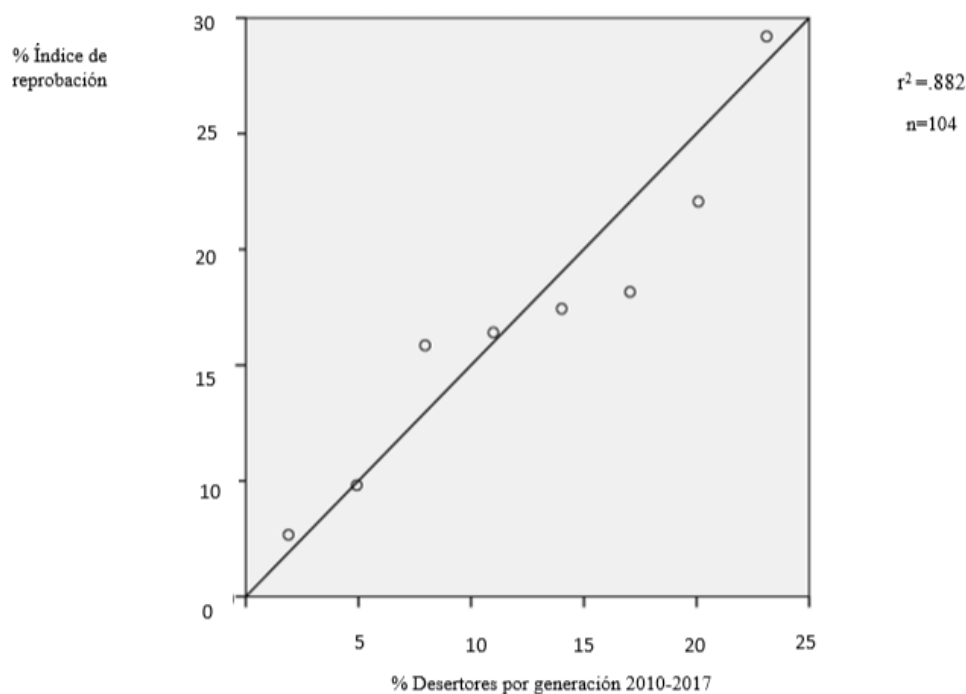
Generación	\bar{x}	\pm	V. Max.	V. Min.	\bar{x}	\pm	V. Max.	V. Min.	\bar{x}	\pm	V. Max.	V. Min.
2010	2.59	2.06	10	0	8	7.49	32	0	7.04	5.94	23	0
2011	2.18	1.5	7	1	7	5.95	19	0	5.5	3.91	14	0
2012	2.95	1.77	7	1	10	6.34	20	0	8.47	7.4	21	0
2013	4.42	3.4	8	1	15	11.87	36	2	11.57	11.37	28	1
2014	2.2	1.03	4	1	11	8.96	25	0	3.6	3.53	10	0
2015	2.18	1.66	5	1	8	5.57	22	0	8.36	4.9	16	2
2016	1.28	0.48	2	1	6	4.44	12	0	3.14	2.67	7	0
2017	1	0	1	1	4	4.24	7	1	4	2.82	6	2

Fuente: Elaboración propia

Relationship of the failure rate and school dropout

Figure 1 shows the relationship between the dropout rate by generational cohort (2010 to 2017) and the failure rate by generational cohort (2010 to 2017) in PELN students through the Pearson correlation coefficient. As a result, a value of 0.939 and a value of $p = 0.001$.

Figura 1. Relación del porcentaje de desertores con el porcentaje del índice de reprobación



Fuente: SUCE (2019)

Discussion

Higher education institutions commonly face the phenomena of reprobation and attrition with a sustained increase, which has generated the need for studies to identify and address the causes that cause them; Therefore, these types of organizations observe these values with a degree of normality. An educational institution in which there are no failures can cause surprise, misunderstanding and outrage. Traditionally, high failure rates were considered acceptable, predominantly in the first years of school (Ciro and Reyes, 2017). At present, however, the evaluating and accrediting agencies of educational programs in Mexico recommend reducing the reprobation rates to values lower than 10% (Ciees, 2016; Concapren, 2016), because reprobation is an issue that must be attend, because it relates to a major problem, school dropout.

The PELN has a flexible curriculum plan, which consists of nine cycles in which the 52 courses are distributed with 4610 total hours, of which 2048 are theoretical, 1906 practical and 656 hours of independent study, which translate into a Total of 301 credits.

Of the 52 courses, 17.31% (nine) belong to the block of generic competences, 13.46% (seven) to interdisciplinary competences, 59.62% (31) to specific competencies, plus 5.77% (three)



of courses that are mandatory extracurricular (Leveling of English A and B; Workshop of oral and written communication), and comprehensive training activities that the student can cover from the first cycle to reach 96 hours, as part of the generic skills.

Determination of the failure rate

There is little scientific literature with analysis and characterization of failing for a period of seven years, taking into account each course taught per school year. Generally, only the percentage of failure of a generational cohort is determined or surveys are applied to recognize the causes of this phenomenon, therefore, no cut-off points were found with which to compare the failure rates of this study. Consequently, it was determined to take as a reference the recommendation issued by Concapren (2016) in the accreditation report and the results of the analysis of the academies and the disciplinary group “Nutrition, Education and Administration” (2016) of the Unacar PELN.

The Concapren (2016) recommends that the failure rate should be less than 10%, that is, 9 out of 10 students enrolled in a course should pass, while the academies and the PELN disciplinary group of the aforementioned university (2016) indicate that a failure rate equal to or less than 30% is acceptable, according to the constant manifested from the analysis of institutional academic trajectories.

The general disapproval index determined in the PELN is higher than indicated by Concapren (2016), but lower than indicated by the PELN. When compared with other studies, it was found to be similar to that reported by Gándara (2014), with $24\% \pm 4$, but lower than that found by Guzmán (2013), namely 47%. It should be noted that none of the studies indicate the number of times the courses were offered.

The failure rate for generic courses shows that only 8.33% of the courses show less than 10% failure, as suggested by Concapren (2016), but according to the criteria of the PELN academies, 33.33% of the courses have an index of disapproval acceptable. Analyzing the average times in which the courses were opened in the generic competitions, it can be seen that the average of failure is increased to double, 51%, that is, on seven occasions that the courses should have been offered, and twice as many times, 14 times, which masks the problem, and the solution is not the number of times a course is offered to reduce the failure; but the strategies that must be generated

to reduce the rejection within the number of times according to the strategic plan of the school trajectory by generational cohort.

In relation to the failure rate of the courses that contribute to interdisciplinary competences, it is identified that no course meets the criteria of national organizations, while 42% of these meet the criteria of the PELN, which determines that the number of times of the same course offered is still a factor that continues to mask the phenomenon of failure, since it was identified that the average opening was twice as many times, recycling failed students, that is, the rate of failure of these courses are 62% and not 31%.

In the analysis of the courses of the specific competences, it was identified that the failure rate of these is lower than those found in those of the generic and interdisciplinary competences, with an average of courses opening corresponding to the strategic plan of the cohort's school career generational, where the factor of times that the same course was offered did not affect the failure rate.

It should be clarified that the administration of the courses of the generic and interdisciplinary competences does not depend on the management of the PELN, as in the case of the specific courses, which shows the limited interference that the actors of the educational program have over the courses of the first two competitions mentioned here, since their participation is limited to the request of the courses that will be offered in the corresponding school period.

Among the courses that make up the specific competences, namely, the PELN disciplinary: basic, professional, optional and terminal, the failure rate was on average within what was proposed by the regulatory bodies and academies of the educational program, as well as The number of times of opening of the same course remained within the strategic plan by generational cohort, which indicates that the strategic exercise carried out within these should be applied in the courses of generic and interdisciplinary competences to achieve a balance and continuity in the academic performance of the students.

Attrition Rate Determination



Dropping out of university students is a controversial issue within higher education institutions. And as already mentioned, the causes are multifactorial (Torres et al., 2017). The dropout rate found in this study is lower than indicated by the Organization for Economic Cooperation and Development [OECD] (2016) for the case of Mexico, with 50%, and Torres et al. (2017), 44%, but similar to that reported by Piratoba and Barbosa (2013): 28.75%.

Some years ago, Torres et al. (2017) identified the factors that affect this phenomenon in the PELN. There were six predominant factors: 1) 47% for change of educational program, 2) 16% for change of career and local educational institution, 3) 12% change to the same career, but in a foreign institution, usually for change of residence, 4) 12% for family problems, 5) 8% for health problems and 6) 5% for economic situation. These data were obtained from the institutional withdrawal certificates, where the student indicates the reasons for definitive withdrawal; However, an analysis of school trajectory was not carried out, specifically the phenomenon of failing, which is something that students do not indicate, since they tend to excuse their dropout.

In that trend, 96% of the dropout students in their school trajectories have between 40% and 80% of failed courses. A phenomenon identified in the present study was the behavior of a dropout student with respect to the average cycles that are advancing and the average of approved and failed courses; an average of 2.35 0.98 advanced cycles, an average of 8.6 3.15 approved courses and an average 6.46 2.74 of courses failed at the time of desertion were found.

Relationship of the failure rate and school dropout

In the present study, it is determined that there is a strong relationship between failure and school dropout, as shown in the linear regression model (Figure 1), in which a value of $r^2 = 0.882$.

Conclusions



In recent years, studies on failing, dropping out, suspension of studies and, in general, related to school success or failure have increased. This investigation allowed us to identify that there is a positive relationship between the number of deserters per generation and the failure rate, that is, the greater the number of courses not approved, the greater the possibility of dropping out.

The general disapproval index does not appear to be a serious problem for the PELN, but, when analyzing this phenomenon in depth, it was identified that the courses of the generic and interdisciplinary competences are those that have the greatest impact on attrition,

The number of times a course is opened masks the problem, therefore, it is necessary to act on this factor, from the proposal of the groups in the system, since it generates economic losses for the institution and problems in the academic trajectories of the students.

The average time a deserter advances is one year and a half, that is, approximately three cycles. During that school year, an average of three approved courses and an average of six failed courses are observed at the time of dropping out.

This research strengthens the results presented by other authors. In addition, it provides novel information for the design of intervention strategies that contribute to eradicating the phenomenon of failure and, in this way, the academic success of university students.

It is recommended to conduct a study on the causes of failure from the perspective of the student in order to develop timely intervention strategies and, therefore, address and reduce this institutional phenomenon.

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