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IDENTIFICATION, IMPLEMENTATION AND EVALUATION OF GENERIC COMPETENCES IN THE CURRICULUM OF THE MIXED AND NON-SCHOOL DEGREE AT THE UNIVERSIDAD DEL VALLE DE MÉXICO

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Abstract. The general objective of this research was to identify, implement and evaluate the new generic competences by 2025-2030, within the framework of the general curricular update of the plans and degree programs in mixed and non-school modality of the Universidad del Valle de México. The research design is based on the action research model, providing information that guides decision-making and change processes. The research approach was qualitative in conjunction with quantitative research. The sample data were the students enrolled in the new curricular model per school year in the mixed and non-school modality during the 2020 and 2021 period, as a result of the development of work to identify the generic competences to be innovated, derived from internal educational research and supported by an external consulting group that carried out interviews and group participatory techniques, the results of which allowed the redesign of the generic competencies for the new institutional Educational Model that are part of the new curricular model; accompanied by an innovative model of instructional design for the operation of the subjects 100% online, developing rubrics to evaluate the achievement of the mastery levels of the proposed competencies. In conclusion, the implementation and operation of a new curricular model has been achieved with new and innovative generic competencies that will strengthen the graduation profile of students who graduated in the second half of this decade.

Keywords: curriculum, professional skills, lifelong learning

IDENTIFICACIÓN, IMPLEMENTACIÓN Y EVALUACIÓN DE LAS COMPETENCIAS GENÉRICAS EN EL CURRÍCULO DE LAS LICENCIATURA MIXTA Y NO ESCOLARIZADA EN LA UNIVERSIDAD DEL VALLE DE MÉXICO

Resumen. El objetivo general de esta investigación fue identificar, implementar y evaluar las nuevas competencias genéricas hacia el 2025–2030, dentro del marco de la actualización general curricular de los planes y programas de licenciatura en modalidad mixta y no escolarizada de la Universidad del Valle de México. El diseño de la investigación se basa en modelo de investigación acción, aportando información que guíe la toma de decisiones y los procesos de cambio. El enfoque de la investigación fue cualitativo en conjunto con la investigación cuantitativa. Los datos muestrales fueron los alumnos inscritos en nuevo modelo curricular por ciclo escolar en la modalidad mixta y no escolarizada durante el periodo 2020 y 2021, como resultado del desarrollo de trabajo de identificación de las competencias genéricas a innovar, derivadas de una investigación educativa interna y apoyados con un grupo consultor externo que llevó a cabo entrevistas y técnicas participativas grupales, cuyos resultados permitieron el rediseño de las competencias genéricas para el nuevo Modelo Educativo institucional que forman parte del nuevo modelo curricular; acompañadas con un innovador modelo de diseño instruccional para la operación de las asignaturas 100% en línea, desarrollando rúbricas para evaluar el logro de los niveles de dominio de las competencias propuestas. Como conclusión, se ha logrado la implementación y operación de un nuevo modelo curricular con nuevas e innovadoras competencias genéricas que fortalecerán el perfil de egreso de los estudiantes egresados en la segunda mitad de esta década.

Palabras clave: currículo, habilidades profesionales, competencias para toda la vida

Introduction

The phenomenon of generic competencies, also known as soft competencies or in the English term, *long life learning* , have taken great relevance since the beginning of the century, because although technological advances have created an endless need for technical disciplinary competencies with great changes, there are competencies that regardless of these technological advances, remain constant in their general definitions, but adapted in organizations to the great challenges of the future: leadership, communication, emotional intelligence, digital literacy and others have currently taken on great relevance.

What is important about these competencies is that by developing them, they not only meet labor needs, but also act in the personal spheres of individuals, both in intrapersonal situations and in family and social situations, improving the individual as a person and, as a consequence, improving the society in which he/she lives.

It is here where universities, in addition to ensuring the development of basic or disciplinary competencies, are also committed to developing generic competencies in their students in order to fully form the graduate in their graduate profile of the study plans that will allow them to be more competitive in the personal, social and labor spheres.

This approach to this type of competencies has had great moments at the beginning of this century with the work of *Tuning* Europe or in the second decade of this century with the work of *Tuning* Latin America, which have tried to linearize and standardize the frame of reference of generic competencies, up to the interest of researchers and academics in this phenomenon, this is the case of the work of Villa and Poblete or Díaz Barriga in Mexico, great exponents of the available research, not only in the conceptual part, but in an integral way, including the management and evaluation of competencies.

This research work, has gone hand in hand with the general updating of the undergraduate curricula at the Universidad del Valle de México, allowing to clarify step by step the paths to follow for the curricular redesign from the planning of the educational project during 2019 to achieve the operation and evaluation of the professional skills subjects that contain the generic competencies mentioned during 2020 and 2021.

In this case and due to the application of the research at the Universidad del Valle de México, the methodology to be used followed the principles of qualitative and quantitative research methodology; qualitative from the vision of working with the methodology of action research and through collaborative group sessions along with the analysis of internal and external documents and quantitative, by analyzing the information generated by the learning platforms called LMS, in this case Blackboard SaaS, which generates a series of data automatically that can be analyzed through general tools such as excel to more sophisticated *software*.

The starting constraints were the time in which curricular changes are implemented in private educational institutions, the pandemic of COVID 19 that came to generate new challenges since 2020 and that apparently will leave new educational realities, the changes in the political environment in Mexico that impacted the changes also in the Ministry of Public Education and in the publication of a new General Law of Higher Education that will surely also modify the agreements 17/11/17 and 18/18/18 under which the actions of higher education institutions were alienated and finally, the speed with which technological change is advancing in humanity where the most constant thing is change itself.

Objectives

The general objective of this research was to identify, implement and evaluate the new generic competencies towards 2025-2030, within the framework of the general curricular update of the undergraduate plans and programs in mixed and non-school-based modality at the Universidad del Valle de México.

Specific objectives:

- Identify from the diagnosis of the current curriculum related to the competencies of the current Educational Model
- Determine the generic competencies that will prevail as an institutional objective in 2025-2030 for the competitiveness of graduates
- Integrate the selected generic competencies in the updating of the institutional Educational Model
- To specify the generic competencies previously indicated in the updated Institutional Educational Model in the curriculum of the updated mixed and non-school curricula
- Determine the correct instructional design of subjects that should be designed to be more effective in the achievement of competencies
- Ensure the correct operation of multicampus curricula with curricular products
- Propose the generic competencies evaluation model according to the reality and characteristics of the institution

Method

For this research, from its preponderant qualitative characteristic, the design called action research has been selected; a description of this design by Sandín (2003) is given below.

The research approach is mixed, qualitative because it contains the following characteristics (Hernandez, Fernandez and Baptista, 2010): explores phenomena in depth; it is basically conducted in natural environments; meanings are extracted from the data; it is not

based entirely on statistics and qualitative because it states hypotheses, dependent and independent variables contrasting hypotheses.

The nature of the study will be predominantly qualitative, based on two strategies: the first, documentary analysis of the main future trends related to competencies, and the second strategy will be to analyze the current status of the subject nationally and internationally, which will be carried out by an external consulting group in order to avoid a possible bias derived from the so-called workshop blindness. In general, calls were made with students and employers in Mexico City as a representative entity of the national educational offer, and digital diaries were made with students in Guadalajara and Monterrey. In addition, two working sessions were held with focus groups, to which the most influential and experienced academics in the institution were invited. Finally, it was complemented with the ethnographic methodology of surveys in Mexico City, Monterrey and Guadalajara and focus groups with applicants and parents.

For the quantitative data, we intend to use statistics as a tool to cross-reference the information variables generated by the reports generated by the learning platform called *Blackboard* and also the information generated by the automated rubrics that will be designed in the instructional design of the corresponding online course.

Finally, within the bibliographic method, the documentary analysis technique will be used and as an instrument the design of tables and matrices will be used to observe and clarify the trends related to generic competencies.

The process is inductive, because particular phenomena are analyzed and investigated to obtain general conclusions; recurrent, since the curriculum design cycle is a continuum with several stages within the process; it analyzes multiple subjective realities; it has no linear sequence, because, during the research itself, new situations are encountered that lead to rethinking the reality that was perceived at the beginning, returning or advancing along the initial path indicated or even adapting new investigative paths.

The scope of the research will be descriptive, according to its characteristics, it is mentioned (Hernández, 2010) that these studies seek to specify the properties, characteristics and profiles of people, groups, communities, processes, objects or any other phenomenon that is subjected to analysis.

The working hypothesis will be the updating of the subjects of the curricular area of professional skills will comprehensively develop the generic competencies for the graduation of students in blended and non-school-based programs that are considered necessary for the present decade.

The population will consider the enrolled students of the mixed and non-schooled bachelor's degrees at the Universidad del Valle de México, as a reference point to 2020-2021, we have the following data:

- 13,347 students in co-educational and non-schooled undergraduate programs
- +24 years
- 95% work and study
- Seeking a degree to improve their working conditions
- Average socioeconomic level
- Upon graduation, 80% in less than two years obtain a change in their level of employment and income
- Attend two or three days a week of classes at night or during the day, but on weekends

The sampling element are students of the Universidad del Valle de México who are enrolled in the undergraduate level, the type of sampling will be probabilistic and the sample will be selected by sampling units (Hernandez, Fernandez, and Baptista, 2010) called groups or sections in which are listed the students enrolled in a mixed or non-school bachelor's degree of the new UVM 2020 model in the courses corresponding to subjects of the curricular area of professional skills in the non-school and mixed modality in a given school cycle in Module A in our educational platform.

In this sense, the minimum sample presents an acceptable error of 5%, taking into account that we do not have the estimated percentage of the previous sample, taking 50%; in addition, a confidence level of 95% is desired.

Results

Determination of cross-cutting generic competencies for all undergraduate curricula in mixed and non-school modalities

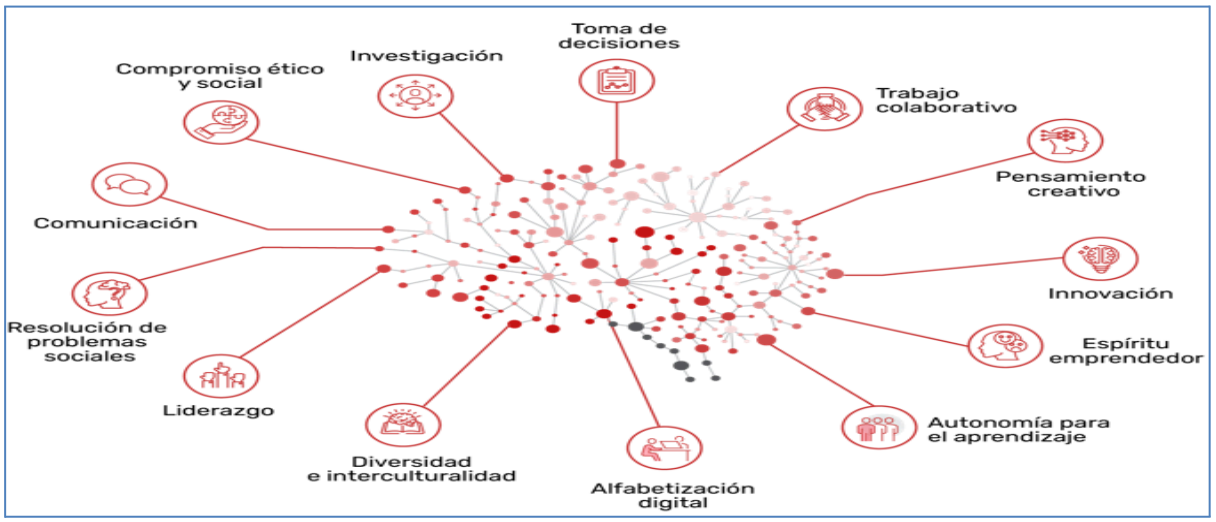
Thirteen generic competencies of the general graduate profile of UVM students were determined. The following is a conceptualization of each of the generic competencies that will be part of the new UVM 2021 Educational Model:

1. Digital literacy
2. Innovation
3. Creative thinking
4. Collaborative work
5. Diversity and Interculturality
6. Social problem solving
7. Ethical and social commitment
8. Decision making
9. Entrepreneurship
10. Communication
11. Leadership
12. Autonomy for learning
13. Research

All generic competencies are part of the update of the new UVM 2021 Educational Model (see Figure 1):

Figure 1

Generic competencies in the new Educational Model UVM 2021



Note. Taken from Modelo Educativo 2021, Universidad del Valle de México.

Insertion of innovative generic competencies into the new curricular model through the curricular area of professional skills

Six of the nine subjects, called Ilab UVM, are presented below (see Figure 2).

Figure 2

Ilab UVM subjects and their agile-like methodologies and tools

Note. Taken from Modelo Educativo 2021, Universidad del Valle de México.

Subsequently, they were inserted in each of the plans in series from the second to the seventh cycle, as shown in a curriculum map (see Figure 3).

Figure 3

Curriculum Bachelor's Degree in Business Administration, mixed modality

Note. Taken from the institutional WEB page of the Universidad del Valle de México https://uvm.mx/oferta-academica/licenciaturas-ingenierias/negocios/licenciatura-en-administracion.

The procedures were carried out before the Ministry of Public Education to obtain the Official Student Records of Validity and commercial materials were developed for the new model (see Figure 4) were developed (see Figure 4).

Figure 4

Institutional Video new curricular model UVM (2020)

Note. Taken from the institutional WEB page of the Universidad del Valle de México https://uvm.mx/la-uvm/nuevo-modelo-educativo.

Innovation in the curricular design of subjects Ilab UVM

The instructional design of the online subjects was carried out by the team of UVM content designers and the academic partner Ilab, with the purpose of inserting the previously established teaching methodologies and gathering the digital resources to achieve the learning objective of each subject. (See figure 5).

Figure 5

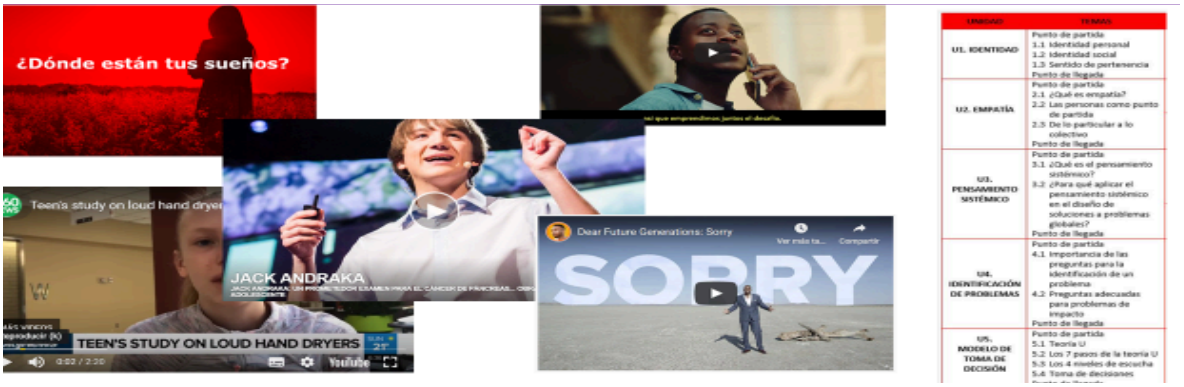
Integration of the 6 Ilab UVM professional skills courses

Note. taken from Castro, R. (2021). Direction of Curricular Design and Innovation, Universidad del Valle de México, Mexico City.

The following is an example of one of the thirteen instructional designs designed to strengthen didactics during the teaching of Ilab UVM subjects (See Figure 6):

Figure 6

Subject 1 Ilab UVM Empathy to Solve

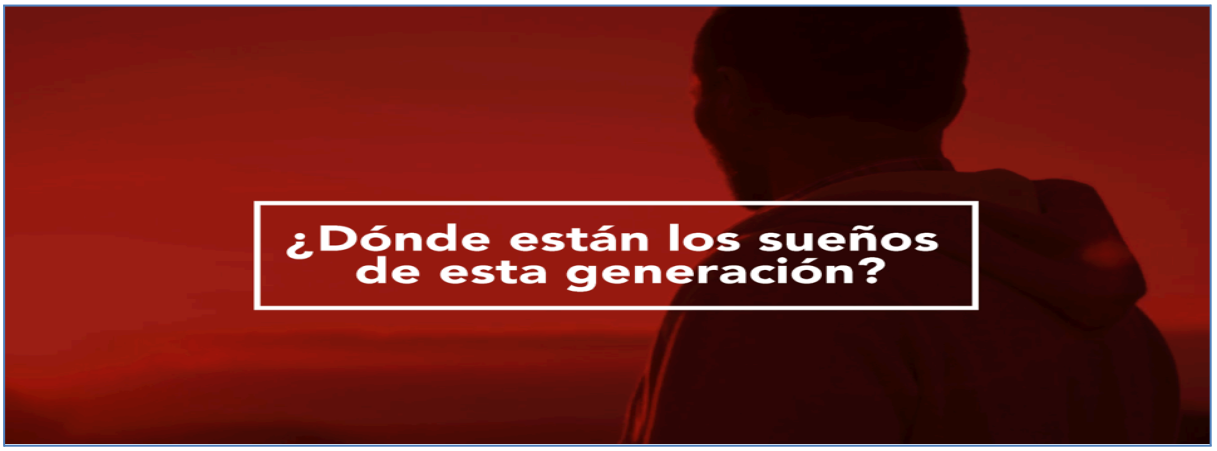


Note. taken from documents in the educational platform of the Universidad del Valle de México.

Each of the six subjects was developed from an instructional model that wanted to be innovative and disruptive, for example, in the first subject called. In the initial part of the course he is questioned about his life and career expectations and even if the career he has chosen is really the one that will lead him to be an agent of social change in the future (see Figure 7).

Figure 7

Introduction to the course Empathy to Solve Ilab UVM



Note: taken from elements of Instructional Design for online courses Ilab UVM (2020). Universidad del Valle de México. Mexico City.

Data analysis 2020-2021 Ilab subjects

The following are the results related to the number of students enrolled since the implementation of the subjects of the new curricular model in the Ilab UVM subjects, according to the total number of students from 2020 to 2021 according to their curricular progress. Starting in C1 2020, the first UVM I lab students began with the subject Empathy to Solve, and as the four-month cycles progressed, they increased geometrically until reaching the sixth cycle in which all 6 subjects are already operating and where the graph shows that the first subject Empathy to Solve represents 48% of the total enrollment (see Table 1).

Table 1

Total number of students and % Cycle 1 2020 and Cycle 3 2021

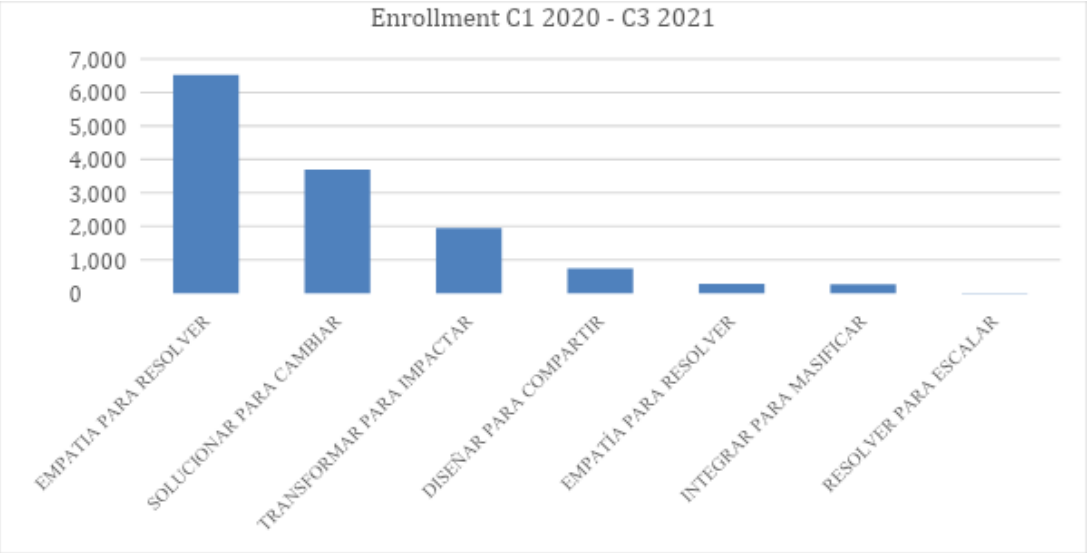
SUBJECT	REGISTRATION	%
Empathy to solve	6,521	48%
Solve for change	3,699	28%
Transforming for impact	1,942	14%
Design for sharing	736	5%
Empathy to solve	284	2%
Integrating for massification	259	2%
Solve to scale	6	0%
Grand total	**13,447**	**100 %**

Note: taken from Blackboard platform reports. Universidad del Valle de México.

The implementation was a challenge due to the number of students enrolled in the subjects, more than 13,000 students have been enrolled, but when the time comes for the new curricular model to mature we will be talking about around 100,000 students per year (see Figure 8).

Figure 8

Total number of students per four-month cycles Cycle 1 2020 and Cycle 3 2021



It is important to determine the students enrolled in each study cycle for each subject, in order to know by program when the results of the competency assessment are obtained, which curriculum is in the first places and which curriculum needs to be improved (see Table 2).

Table 2

Enrollment per four-month cycle by subject C1 2020 and C3 2021

SUBJECT ILAB UVM	ENROLLMENT BY CYCLE
Empathy to solve	**652**
2020 C1	64
2020 C2	290
2020 C3	499
2021 C1	2,008
2021 C2	1,785
2021 C3	1,875
Solve for change	**3,699**
2020 C2	51
2020 C3	381
2021 C1	586
2021 C2	1,291
2021 C3	1,390
Transforming for impact	**1,942**
2020 C3	18
2021 C1	315
2021 C2	524
2021 C3	1,085
Design for sharing	**736**
2021 C1	14
2021 C2	272
2021 C3	450
Empathy to solve	**284**
2020 C2	284
Integrating for massification	**259**
2021 C2	12
2021 C3	247
Solve to scale	**6**
2021 C3	6
Grand total	**13,447**

Note. taken from Blackboard platform reports. Universidad del Valle de México. Mexico City

It is important to determine the average final and total grade for each of the 6 Ilab UVM subjects in each of the campuses, in order to analyze any significant differences, as well as in due course to be able to go into more detail as a final average grade per cycle and analyze the reason for these possible variations in order to elaborate the corresponding corrections, for example, details in the instructional design of the subject or teacher training (see Table 3).

Table 3

Final grade by program of studies by subject of the four-month cycle Cycle 1 2020 to Cycle 3 2022

Subject	Final rating
Integrating for massification	9.61
Design for sharing	9.48
Solve to scale	9.46
Transforming for impact	9.40
Empathy to solve	9.40
Solve for change	9.17
Empathy to solve	9.08
Grand total	**9.19**

Note. taken from Blackboard platform reports. Universidad del Valle de México.

Taking into account two important variables: total enrollment and final grade, using the R2 coefficient to measure the strong or weak correlation between these two data and according to the result of 0.83, they have a strong positive correlation, since the positive limit is from 0 to 1, which means that the result of the evaluation depends strongly on the number of total students enrolled. Likewise, a standard deviation analysis was performed between the final grade of the 6 subjects, with a minimum standard deviation, which leads us to reliable results of more than thirteen thousand data with a variability index (see Table 4).

Table 4

Subject with enrollment and final grade, including correlation coefficient and standard deviation of total grades

SUBJECTS	TOTAL ENROLLMENT	FINAL GRADE
Empathy to solve	6,521	9.08
Solve for change	3,699	9.17
Transforming for impact	1,942	9.40
Design for sharing	736	9.48
Empathy to solve	284	9.40
Integrating for massification	259	9.61
Solve to scale	6	9.46
Grand total	**13,447**	**9.19**
Coefficient R2	0.836383668	
Standard deviation		0.187323537

Implementation of curricular evaluation model and generic competencies of professional skills subjects new UVM model

A. Proposed updated curriculum evaluation plan

To design an instrument to internally evaluate the curricular design of the curricula in force at Universidad del Valle de México in order to guide decision making to maintain, restructure or replace the components of the curricular system, guaranteeing the educational quality of its operation and orienting them towards academic excellence.

B. Proposals for the implementation of an evaluation of generic competencies

Three evaluation instruments are proposed, which are detailed below and are mainly based on the work of Villa and Poblete (Poblete and Sanchez, 2011) in their research work related to the evaluation of generic competencies, but these proposals are specified according to the institution's own reality, making the corresponding adjustments in each of the generic competencies, their definitions, their levels of mastery and their performance indicators

1. Competency-focused learning assessment questionnaire

This questionnaire replaces the initial idea of interviews, to provide a systematic response on learning assessment, its approach and direction.

Students using an automated questionnaire designed with a rubric-type evaluation instrument with *feedback* on their answers in the first and last week of classes must:

- Complete both questionnaires, with an evaluative mark each to ensure their completion
- To answer the questionnaires in order to obtain reliable data on the resources mobilized by the student in the performance of the required competencies
- Evaluate each student

The following is an example of the design of the questionnaire to assess collaborative work competency from the work of Villa and Poblete (Poblete and Sanchez, 2011):

Definition of collaborative work competency:

Integrate and collaborate actively in the achievement of common objectives with other people, areas and organizations.

Levels of mastery:

1. Actively participate and collaborate in team tasks and foster trust, cordiality and joint task orientation.

2. Contribute to the consolidation and development of the team, favoring communication, balanced distribution of tasks, internal climate and cohesion.

3. Lead work groups, ensuring the integration of members and their orientation to high performance.

Performance indicators:

1.- Performs the tasks assigned to him/her within the group within the required deadlines

2.- Participates actively in the team's meeting spaces, sharing information, knowledge and experiences

3. Collaborates in the definition, organization and distribution of group tasks

4. It is oriented to the achievement of agreements and common objects and is committed to them

5.- Takes into account the points of view of others and provides constructive feedback

Procedure:

A classification of competencies assigned to each subject will be made. In the case of Collaborative Work, for the first domain level "Participate and collaborate actively in team tasks and foster trust, cordiality and joint task orientation", it is assigned to the subject "Integrate to massify".

The student will know, from the beginning of the course, the two to five indicators that are inserted in the design of the evaluation rubric, the basis for the questionnaire to be answered in *blackboard*. For example, if indicators 1, 2 and 4 were selected, these will be the ones included in the questionnaire.

In the questionnaire, questions are elaborated around the indicators in order to obtain evidence on their performance. These questions will have according to their answers a message and orientation for the final result. Automated responses in BB may suggest additional questions that will help explore the scope of the corresponding indicator.

Figure 9
Indicators of teamwork competence

Competencia	Indicadores	Posibles preguntas	Respuestas del estudiante
Trabajo en equipo: Integrarse y colaborar de forma activa en la consecución de objetivos comunes con otras personas, áreas y organizaciones **Primer nivel de dominio:** ***participar y colaborar activamente en las tareas del equipo y fomentar la confianza, la cordialidad y la orientación a la tarea conjunta***	**Realiza las tareas que le son asignadas dentro del grupo en los plazos requeridos**	Habla sobre una experiencia de trabajo en equipo, sobre algún grupo en el que hayas trabajado para hacer una tarea de clase ¿Qué tareas concretas te correspondió realizar? ¿Cómo te organizaste para hacerlas? ¿Quedasteis en un plazo de tiempo para hacerlas? ¿Cuál fue dicho plazo? ¿Entregaste en el tiempo estimado o te atrasaste? ¿Cuáles fueron las causas?	
	Participa de forma activa en los espacios de encuentro del equipo, compartiendo la información, los conocimientos y las experiencias	¿Sueles asistir a todas las reuniones del grupo de trabajo? ¿Por qué? ¿Tomas la iniciativa en los debates o prefieres escuchar y hacer lo que te parece más adecuado? Explica alguna de tus aportaciones al grupo	
	Se orienta a la consecución de acuerdos y objetivos comunes y se compromete con ellos	¿Cuál era el objetivo principal del trabajo que estás comentando y cuáles eran tus objetivos personales? ¿Cuál fue el acuerdo del grupo que más te costó aceptar? ¿Por qué?	

Note. taken from Villa Sánchez, A., and Poblete Ruiz, M. (2011). Evaluation of generic competencies: principles, opportunities and limitations. Bordon. *Revista De Pedagogía*, 63(1), 147-170. https://recyt.fecyt.es/index.php/BORDON/article/view/28910

Figure 10
Indicators of teamwork competence

Cuadro 9. Valoración de la información aportada sobre los indicadores de competencia

Indicador	1	2	3	4	5
Realiza las tareas que le son asignadas dentro del grupo en los plazos requeridos	No cumple las tareas asignadas	Cumple parcialmente las tareas asignadas o se retrasa	Da cuenta en el plazo establecido de los resultados correspondientes a la tarea asignada	La calidad de la tarea asignada supone una notable aportación al equipo	Además de cumplir la tarea asignada, su trabajo orienta y facilita el del resto de los miembros del equipo
Participa de forma activa en los espacios de encuentro del equipo, compartiendo la información, los conocimientos y las experiencias	En los trabajos de grupo se ausenta con facilidad y su presencia es irrelevante	Interviene poco, más bien a requerimiento de los demás	En general se muestra activo y participativo en los encuentros de grupo	Con sus intervenciones fomenta la participación y mejora la calidad de los resultados del equipo	Sus aportaciones son fundamentales tanto para el proceso grupal como para la calidad del resultado
Se orienta a la consecución de acuerdos y objetivos comunes y se compromete con ellos	Persigue sus objetivos particulares	Le cuesta integrar sus objetivos personales con los del equipo	Asume como propios los objetivos del grupo	Promueve la definición clara de objetivos y la integración del grupo en torno a los mismos	Moviliza y cohesiona al grupo en aras a objetivos más exigentes. Los grupos en los que participa sobresalen por su rendimiento y calidad

Note. Taken from Villa Sánchez, A., and Poblete Ruiz, M. (2011). Evaluation of generic competencies: principles, opportunities and limitations. Bordon. *Revista De Pedagogía*, 63(1), 147-170. https://recyt.fecyt.es/index.php/BORDON/article/view/28910.

Scale of results

If it is desired to approximate the evaluation to the traditional criteria (from 1 to 5 or from 1 to 10) the general evaluation for all types of indicators can be as follows:

- Insufficient: the student does not have a sufficient level of mastery of the assessed competency.
- With doubts: it is necessary to question the student's preparation with respect to the assessed competence, considering how to overcome the insufficient aspects evidenced by the questions on some of the indicators, as well as the learning activities that he/she should perform.
- Sufficient: the respondent performs the competency (competency indicators) at an acceptable level.
- Good: demonstrates a good level of mastery with respect to the assessed aspect.
- Excellent: demonstrates an exceptional level of competence.

2. Automated competency-based learning assessment interview integrated in the 8th cycle

An automated interview will be carried out by means of an integration of all the evaluation rubrics of all the generic competencies to be evaluated.

The student should have developed his/her generic competencies not only in the professional skills subjects from 2 to 7 cycles, but also in basic and disciplinary subjects from 1 to 8 cycles, so that this evaluation would seek evidence of the level of achievement of the competencies at the end of his/her career.

3. Portfolio of evidence

The portfolio of competences that the student must present in order to pass the final thesis contains two parts: the first one will contain the portfolio report and the second one will include the evidences represented by the material that documents the different levels of achievement of the competences argued in the report

Implementation of automated rubrics to assess the generic competencies of the professional skills curricular area

For this article, an example of one of the 13 developed rubrics that will be found in an automated way in the *Blackboard* platform and which will be assigned to each of the subjects that develop this competency will be taken

Digital literacy

Table 5

A1 Digital Literacy Rubric

MASTERY LEVELS	INDICATORS	DESCRIPTORS				
		1	**2**	**3**	**4**	**5**
Second level of mastery: Plan consultations in digital libraries and specialized databases based on criteria that allow them to refine the selection and processing of resources extracted from the Internet, in order to develop and share the requested task through the educational platforms at their disposal.	Performs consultations in digital libraries and specialized databases.	Consult and perform basic searches in digital libraries.	Locates specific information on Internet sites as a supplement to research in print sources.	Search for information resources based on their format: document, image, web page, video.	Performs queries in specialized databases.	Selects the information obtained based on its relevance, timeliness and reliability of the source, and cites information and resources extracted from the Internet.
	Use the communication tools (chat, messaging, teamwork) of *Teams* and *Blackboard*.	Recognizes the communication tools available in *Teams* and *Blackboard*.	Identifies publications and announcements about assignments during the course of the assignment.	Identifies channels (publications, files, notepads, tasks) within a team for the organization of tasks.	He shares files related to the subject and uses the channels for the management of his assignments.	Create teams within *Teams* and communicate with colleagues via private message in Blackboard
	Use the package to process information.	Selects page view modes.	Save the file in a different format from the source.	Insert special characters and graphic objects,	Get to apply design to tables: colors, styles and alignment.	Adding and omitting words from the dictionary.

MASTERY LEVELS	INDICATORS	DESCRIPTORS				
		1	2	3	4	5
	Performs editing of images, audio and/or video files and identifies the characteristics that distinguish video, audio and image files.	Identifies image, audio and video formats.	Identifies and uses image banks, audio, video files.	Cite the digital sources from which the images, audios and/or video files are extracted.	Edit images, audio and/or video files.	Save an image, audio, and/or video file in a format other than the source format.
	Uses educational platforms to implement their learning activities.	Recognizes the characteristics of the various workspaces in *Teams* and *Blackboard*, as well as UVM Portico.	Locate, download and use resources and materials in *Teams Blackboard* and Portico UVM.	Participate in discussion forums and work in *Teams* and *Blackboard*.	Use the communication tools of the *Teams* and *Blackboard* platforms.	Get to send automated tasks and reply with specific features, such as number of attempts

Note: taken from the Curricular and Instructional Design Manual 2021 Universidad del Valle de México.

Table 6

Competencies vs. levels of mastery

COMPETENCY	FIRST LEVEL OF MASTERY	SECOND LEVEL OF MASTERY	THIRD LEVEL OF MASTERY
Digital Literacy		x	
Innovation			x
Creative Thinking			x
Collaborative work	x		
Diversity and Interculturality			x
Social problem solving			x
Ethical and social commitment			x
Decision making		x	
Entrepreneurship			x
Communication			x
Leadership			x
Research			x

Figure 11

Obverse side of the certificate that will be awarded to students upon completion of the sixth course Ilab UVM

Figure 12

Reverse side of the certificate that will be awarded to students upon completion of the sixth course Ilab UVM

Figure 13
Generic competency Leadership to be assessed within the subject of Ilab UVM Solve to scale

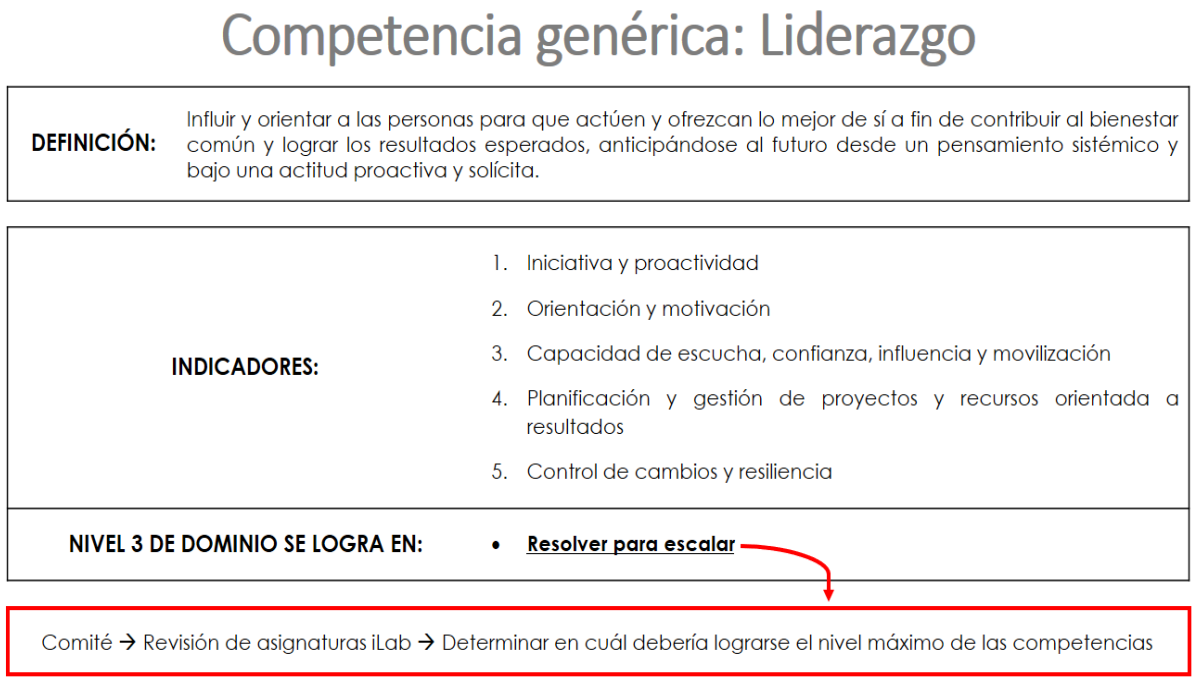


Figure 14
Levels of mastery of the Leadership competency to be developed within the Ilab UVM course Solve to scale

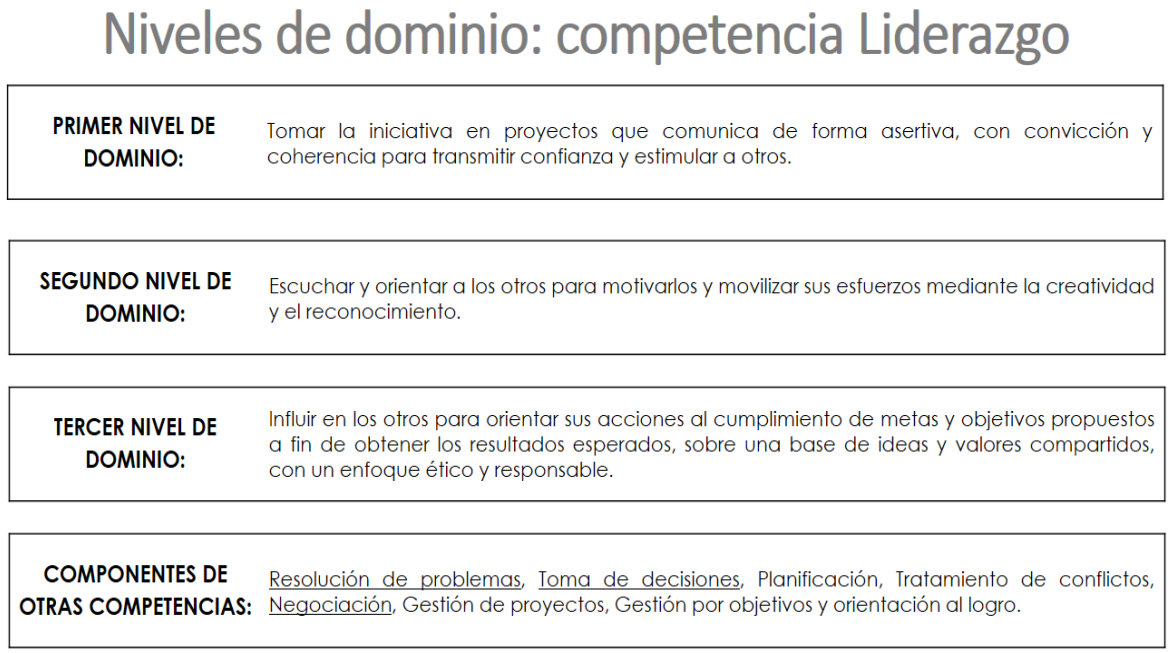


Figure 15

Example of rubric for the generic competency Leadership to be assessed within the Ilab UVM course Solve to scale

Ejemplo de sección rúbrica de Liderazgo

NIVELES DE DOMINIO	INDICADORES	DESCRIPTORES				
		1	2	3	4	5
Primer nivel *Tomar la iniciativa en proyectos que comunica de forma asertiva, con convicción y coherencia para transmitir confianza y estimular a otros.*	**Iniciativa y proactividad:** Destaca entre los demás comunicando sus iniciativas y expectativas de logro con claridad consiguiendo entusiasmarlos	Evita comunicar sus iniciativas, dar seguimiento a sus aspiraciones y competir con otros	Plantea sus iniciativas de forma poco clara y su ambición desparece cuando tiene que competir con otros	Comunica sus iniciativas con claridad, muestra ambición y competitividad en sus proyectos	Convence con sus iniciativas, disfruta competir sanamente con otros y manifiesta su deseo de logro	Destaca por sus iniciativas que comunica de forma clara, su espíritu competitivo y su consecución de logros, consiguiendo convencer y entusiasmar a otros
	Orientación y motivación Orienta y estimula a los miembros de su grupo o proyecto a generar ideas al promover el desarrollo de su creatividad en un ambiente de confianza	Muestra indiferencia por orientar e inspirar a los miembros del grupo o proyecto para que puedan generar y comunicar sus ideas	Muestra poco interés en las ideas y aportaciones que los miembros del grupo o proyecto puedan realizar	Anima a otros a comunicar sus ideas acerca del grupo o proyecto	Estimula la generación de ideas y sugerencias reconociendo las capacidades de los diferentes miembros del grupo o proyecto	Orienta a los miembros de su grupo o proyecto para que desarrollen su creatividad proponiendo y modelando ideas que les permitan mejorar en un ambiente de confianza

Figure 16

Scale to evaluate the generic competency Leadership that will be evaluated within the Ilab UVM subject Resolve to scale

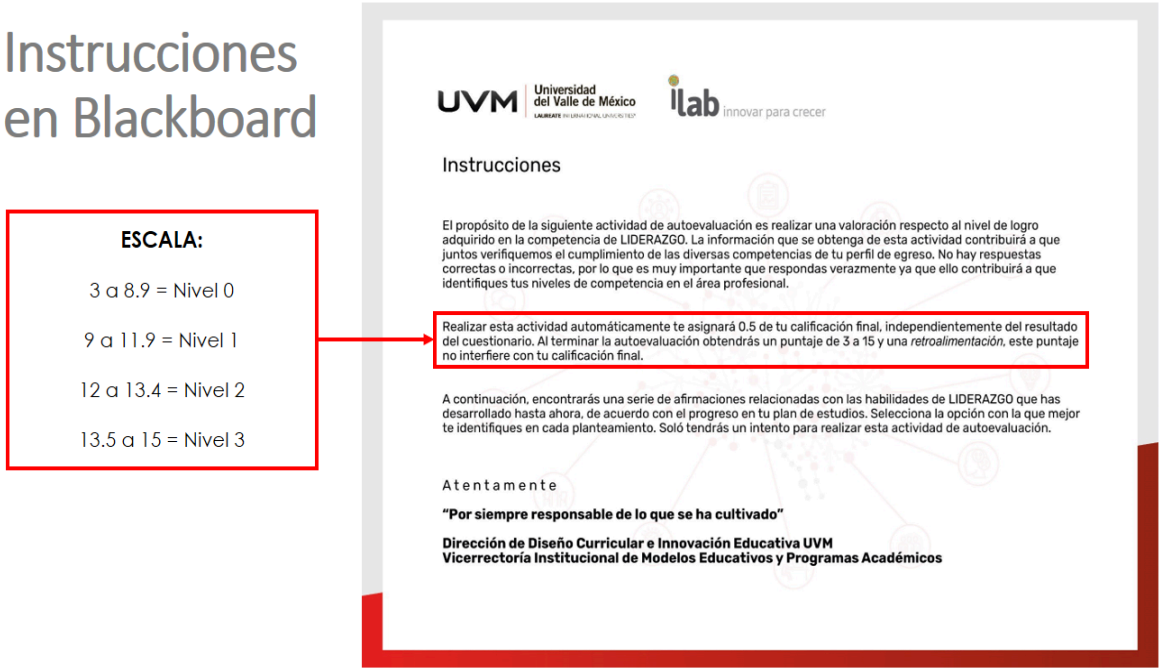


Figure 17

Example of the automated rubric integrated in Blackboard to assess generic competency Leadership to be assessed within the Ilab UVM course Solve to scale

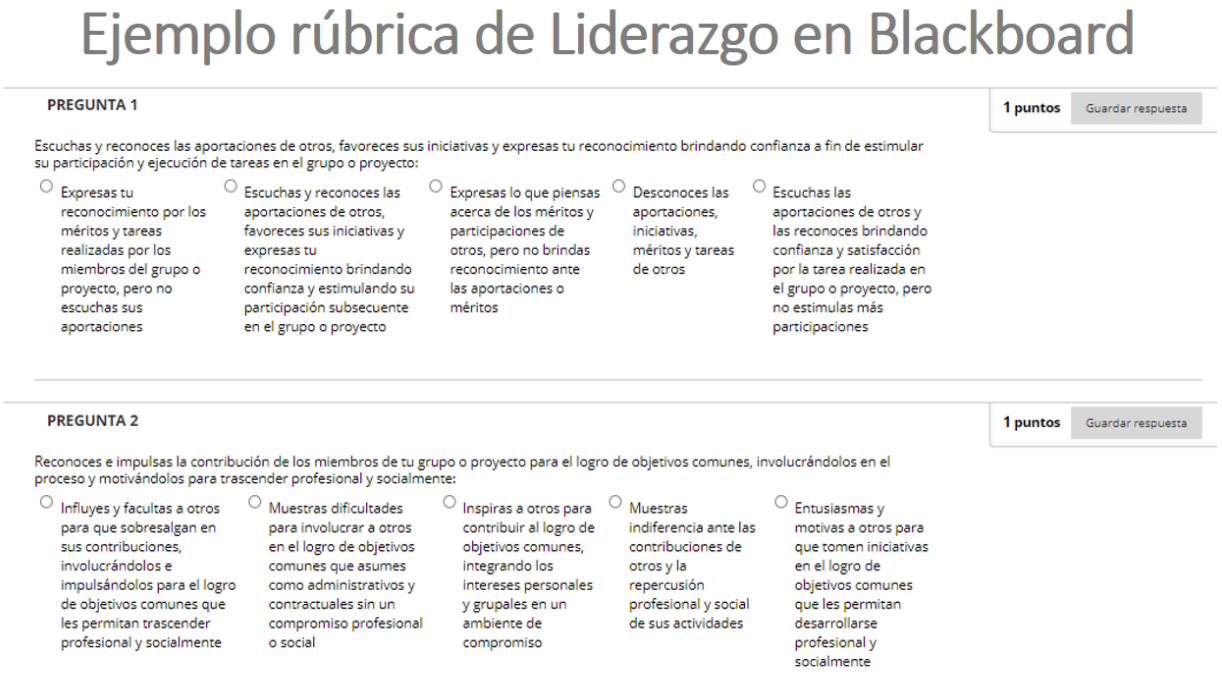


Figure 18

Message that automatically appears to the student in Blackboard as a result of their level 0 assessment of the generic competency Leadership that will be assessed within the Ilab UVM course Resolve to scale

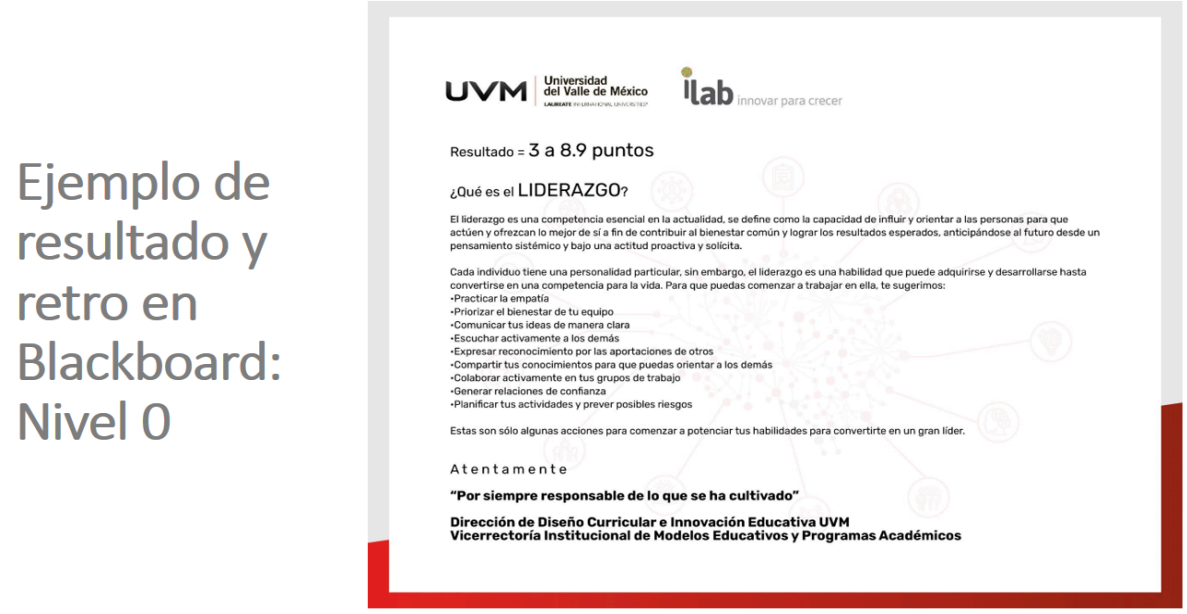


Figure 19

Message that automatically appears to the student in Blackboard as a result of their intermediate level assessment and progression of the generic competency Leadership that will be assessed within the Ilab UVM course Resolve to scale

Ejemplo de resultado y retro en Blackboard: Nivel intermedio y progresión

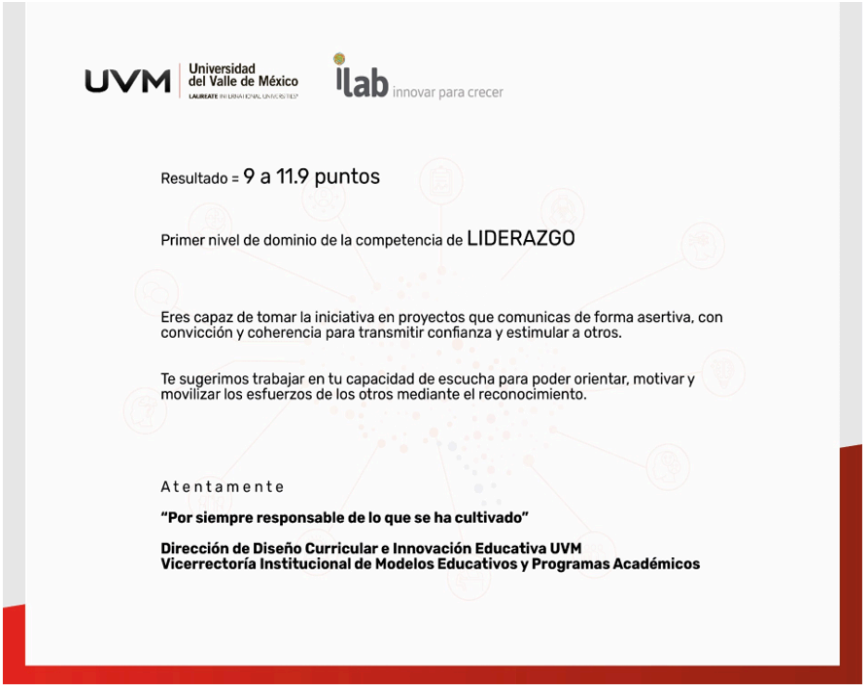


Figure 20

Message that automatically appears to the student in Blackboard as a result of their level 3 assessment and completion of the generic competency Leadership that will be assessed within the Ilab UVM course Resolve to Scale.

Ejemplo de resultado y retro en Blackboard: Nivel 3 y conclusión

Discussion and conclusions

The generic competencies that were considered in the update of the Educational Model 2021 of the Universidad del Valle de México were identified and implemented within the curricular innovation within the curricular area of professional skills transversal to all degree plans

Four learning methodologies and agile tools were included for each subject, with a design to be taught on the *Blackboard* educational platform, with an innovative instructional design that allows the achievement of the levels of mastery of the generic competencies initially proposed for 13,000 students and is expected to reach a total of 100,000 students per year in the coming years, strengthening the development of the generic competencies developed in each subject, evaluating them for their control and updating process and contributing to the strengthening of the graduate profile of the graduates in each study plan

In relation to academic quality and control, a proposal was developed for a comprehensive evaluation system of the generic competencies to be developed in the student, consisting of evaluations for each subject and their levels of mastery to be developed, a portfolio of evidence of integrative products of knowledge, skills and attitudes and a comprehensive exit exam that identifies the level achieved in each of the 13 updated competencies of the UVM 2021 Educational Model.

With regard to the specific objectives, the generic competencies of the new curriculum model were determined, taking into account different public and private organizations and extensive documentary research related to the subject, supported by an external consulting group

In addition, the results of the diagnosis of the current curriculum were analyzed and contrasted with the proposed generic competencies of the future

Likewise, the generic competencies were implemented in cross-cutting subjects in the curriculum map of the programs to be updated and the instructional design was made according to the non-school-based teaching modality of the cross-cutting subjects of generic competencies.

In addition, a generic competency evaluation model was established for the student. Additionally, 13 rubrics were designed to be placed in the previously defined subjects that are aligned to the performance indicators developed for each generic competency.

Finally, a strategy was developed for the following cycles to evaluate each of the generic competencies in their respective levels of mastery, providing concrete results of this implementation and helping to make corrective decisions.

The limitations of this work were the dynamics with which the curriculum design is developed and the complexity of an institution with so many campuses, modalities and study plans, under the operation of communication and learning platforms such as *Teams* or *Blackboard*.

References

ACIMSA. (2017, April 21). *Los empleadores opinan sobre los egresados de UVM*. Blog UVM. https://blog.uvm.mx/los-empleadores-opinan-sobre-los-egresados-de-uvm

Alles, M. (2009). *Diccionario de competencias: la trilogía, nuevos conceptos y enfoques*. Granica. https://elibro.net/es/ereader/uvm/66703

Amoros, A. (2008). La programación de unidades didácticas por competencias. *Revista Aula de innovación educativa*, *180*, 26-32. https://www.grao.com/es/producto/revista-aula-180-marzo-09-programar-y-evaluar-competencias

Arbesú, M., Gutiérrez, E. (2014). El portafolios formativo. Un recurso para la reflexión y auto-evaluación en la docencia. *Revista Perfiles Educativos, 36*(143), 105-123. https://www.redalyc.org/articulo.oa?id=13229888007

Lustosa A. C., Yaacov, B.B., Franco C., Arias E., Heredero, E., Botero, J., Brothers, P., & Payva, T. *(*2021). *Higher Education Digital: Transformation in Latin America and the Caribbean.* Inter-American Development Bank. http://dx.doi.org/10.18235/0003829

Bermejo, J., Martínez, A. (2012). *Humanizing leadership*. Desclee de brouwer. https://bibliotecas.uvmnet.edu/portico/gui/

Bolívar, A. (2005). El lugar de la ética profesional en la formación universitaria. *Revista mexicana de investigación educativa, 10*(24), 93-123. http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S140566662005000100093&lng=es&tlng=es.

Bunk, G. P. (1994). La transmisión de las competencias en la formación y perfeccionamiento profesionales de la RFA. *Revista Europea de Formación profesional, 1, 8-14*. https://dialnet.unirioja.es/servlet/articulo?codigo=131116

Cano, E. (2005). Cómo mejorar las competencias de los docentes: guía para autoevaluación y el desarrollo de las competencias del profesorado. *Revista curriculum y formación del profesorado. 8*(2), *1-213.* https://dialnet.unirioja.es/servlet/articulo?codigo=5297165

Castro, R. (2019). *Listado de competencias genéricas entre diversos modelos de competencias genéricas nacionales e internacionales.* Universidad del Valle de México.

CENEVAL (2018). *Exámenes Generales de Egreso*. http://www.ceneval.edu.mx/examenes-generales-de-egreso

Centros de Estudio de Opinión Laureate México. (2018). *Encuesta Nacional de Egresados 2018*. Universidad del Valle de México. https://opinionpublicauvm.mx/egresados2018

Coll, C. (2013). Las competencias en la educación escolar: algo más que una moda y mucho menos que un remedio. *Revista Aula de innovación educativa*, *161*, 34-39. https://dialnet.unirioja.es/servlet/articulo?codigo=2281692

Díaz, M. (Dir). (2006). *Informe de Modalidades de enseñanza centradas en el desarrollo de competencias: orientaciones para promover el cambio metodológico en el espacio europeo de educación superior.* University of Oviedo. https://www2.ulpgc.es/hege/almacen/download/42/42376/modalidades_ensenanza_competencias_mario_miguel2_documento.pdf

Durán, R. & Estay, C. (2012). Estudio comparativo sobre competencias genéricas en modalidad presencial y virtual en un curso de pregrado de la universidad tecnológica de Panamá. *Revista Actualidades Investigativas en Educación*, *12*(2), 1-33. https://doi.org/10.15517/aie.v12i2.10278

Esteban, F. (2018). *Cuadernos de docencia universitaria*: *El compromiso ético en la formación universitaria: reflexiones y recomendaciones*. University of Barcelona. https://www.ub.edu/idp/web/sites/default/files/docs/qdu/36cuaderno.pdf

Galván, J., Villalón M., & Medina M. (2019). Propuesta de un modelo educativo para su integración a la educación 4.0. *Revista Electrónica ANFEI Digital*, *6*(11), 1-7. https://anfei.mx/revista/index.php/revista/article/viewFile/600/1237

Gobierno de Canarias. (n. d.). *Competencia en comunicación lingüística.* Ecoblog. https://www3.gobiernodecanarias.org/medusa/ecoblog/jtolsan/competencias-basicas/competencia-en-comunicacion-linguistica/

Government of Spain. Ministry of Education and Vocational Training. (n. d.). *Ley de educación. Competencia en comunicación lingüística.* https://www.educacionyfp.gob.es/educacion/mc/lomce/curriculo/competencias-clave/competencias-clave/liguistica.html

González M., Gómez L., Espinosa J., Cárdenas D., Garzón Y., Montoya E., Núñez E., Solano J., & Tarquino J. (2007). Evaluación por competencias de la dimensión ética en la formación de psicólogos en Colombia. *Revista Diversitas*, *3*(1), 11-24. http://pepsic.bvsalud.org/scielo.php?script=sci_arttext&pid=S1794-99982007000100002&lng=pt&tlng=es

González F., Herrera, E., & Zurita, R. (2008). *Formación basada en competencias: Desafíos y oportunidades.* Centro interuniversitario de desarrollo–cinda; Grupo operativo de universidades chilenas; Fondo de desarrollo institucional–mineduc–Chile. https://cinda.cl/wp-content/uploads/2008/12/diseno-curricular-basado-en-competencias-y-aseguramiento-de-la-calidad-en-la-educacion-superior.pdf

Hernandez, R., Fernández, C., & Baptista, M. (2010). *Metodología de la Investigación*. McGraw Hill Education.

Innovative Futures institute. (2022). *El futuro de las universidades: 40 perspectivas sobre como las universidades pueden transformar la sociedad mexicana y promover el desarrollo económico* 2022. Coordinación de Universidad Abierta, Innovación Educativa y Educación a Distancia. Universidad Nacional Autónoma de México. https://cuaieed.unam.mx/descargas/FUT_MEX_prnt_02022022.pdf

Johnson, C. (2007). Chapter 3: Ethical Decision Making and Action. *Transforming individual ethics in the organization* (pp. 59-86). Sage Publications. https://www.sagepub.com/sites/default/files/upm-binaries/12906_Chapter3.pdf

Levy, D.C. (2013). The Decline of Private Higher Education. *Working Papers of The Program for Research on Private Higher Education*, *26*, 25-42. https://www.prophe.org/en/working-papers/the-decline-of-private-higher-education/

Letelier S. M., Oliva, C., & Sandoval, M. (2008). *Propuesta del modelo general de diseño curricular orientado a la empleabilidad y aseguramiento de la calidad*. *Chile: Chilean university task force*. Centro interuniversitario de desarrollo–cinda; Grupo operativo de universidades chilenas; Fondo de desarrollo institucional–mineduc–Chile. https://cinda.cl/wp-content/uploads/2008/12/diseno-curricular-basado-en-competencias-y-aseguramiento-de-la-calidad-en-la-educacion-superior.pdf

Llergo, F. (2018). *La educación y los retos de 2018: Una perspectiva académica*. Universidad Panamericana and IPADE. Congreso Federación de Instituciones Mexicanas de Educación Superior FIMPES, Ciudad de México.

López, A. (2011). *El desarrollo curricular de la competencia en comunicación lingüística*. Organismo Autónomo Programas Educativos Europeos (OAPEE). http://www.proyectoatlantida.eu/wordpress/wp-content/uploads/2016/01/Libro-2-Comunicacion-linguistica-OAPEE-ATLANDIDA.pdf

Maier T., Amatriain A., Fariña L., Fariña M., & Jorge J. (2019). La vigencia del modelo de James Rest sobre el desarrollo moral y su interés para la evaluación de la conducta ética. In *XI Congreso Internacional de Investigación y Práctica Profesional en*

Psicología. Facultad de Psicología - Universidad de Buenos Aires, Buenos Aires. https://www.aacademica.org/000-111/107.pdf

Martínez, H. (2010). *Liderazgo responsable*. ECOE Editions. https://elibro.net/es/ereader/uvm/69167

Martinez, R. (2019). *Educación y futuro del trabajo: la visión global de la OCDE*. Organización para la Economía, Cooperación y Desarrollo (OECD). https://www.oecd.org/education/El-trabajo-de-la-ocde-sobre-educacion-y-competencias.pdf

Medina, A., Casillas M., & Zayas G. (2012). Identificación y selección de competencias genéricas: Caso educación superior tecnológica en México. *Rexe. Revista de estudios y experiencias en educación*, *11*(22), 99-122. https://www.redalyc.org/articulo.oa?id=243125410005

OECD Development Centre. (2015). *E-learning in Higher Education in Latin America*. (O. D. Centre, Ed.). Organización para la Economía, Cooperación y Desarrollo (OECD). https://www.oecd-ilibrary.org/education/e-learning-in-higher-education-in-latin-america_9789264209992-en

Parada, J. (2018). El papel de las Universidades Privadas para Impulsar la Economía y Sociedad Basada en el Conocimiento. In *Congreso Federación de Instituciones Mexicanas de Educación Superior FIMPES*. Mexico City

Perez, M. (2014). Evaluación de competencias mediante portafolios. *Revista Perspectiva Educacional. Formación de Profesores,* *53*(1), 19-35. http://www.perspectivaeducacional.cl/index.php/peducacional/article/viewFile/213/97

Poblete M., & Sánchez A. (2011). Evaluación de competencias genéricas: Principios, oportunidades y limitaciones *Bourdón. Revista de Pedagogía*, *63*, 147-170. https://www.upv.es/entidades/ICE/info/EvaluacionCompetenciasGenericas.pdf

Ríos, I. (2010). Language: a tool for the reconstruction of thought. *Revista Razón y Palabra, 72*, 1-25. http://www.razonypalabra.org.mx/N/N72/Varia_72/27_Rios_72.pdf

Sandin Esteban, M. P. (2003). *Investigación cualitativa en educación: fundamentos y tradiciones*. Mc Graw Hill.

Schwab, K. (2016). *World Economic Forum Annual Meeting*. World Economic Forum. https://www.weforum.org/agenda/2016/01/9-quotes-that-sum-up-the-fourth-industrial-revolution/

Secretaría de Educación Pública. (2017). *Acuerdo 17/11/17*. Diario Oficial de la Federación. http://www.dof.gob.mx/nota_detalle.php?codigo=5504348&fecha=13/11/2017

Solar Rodríguez, I. (2005). The competency curriculum in higher education: challenges and issues. *Revista Pensamiento Educativo. 36*, 172-191. http://ojs.uc.cl/index.php/pel/article/view/26385/21197

Tobon. S. (2008). *La formación basada en competencias en la educación superior: el enfoque complejo.*

Tobón, S. (2010). *Formación integral y competencias*. ECOE Ediciones.

Tuning Academy. (2019). *Reflexiones y Perspectivas de la Educación Superior en América Latina.* University of Deusto. https://decsa.uchile.cl/wp-content/uploads/Tuning-reflexiones-y-perspectivas-de-la-educación-superior-en-america-latina.pdf

UNESCO. (2022). *Re-imaginar juntos nuestros futuros: un nuevo contrato social para la educación.* https://unesdoc.unesco.org/ark:/48223/pf0000379381_spa

UNESCO. (2022). *Documento de trabajo Más Allá de los límites: Nuevas formas de reinventar la educación superior*. http://grupomontevideo.org/sitio/wp-content/uploads/2022/05/6be1788a20aecc20c546

8118ef386ed5f0271e46d0298d778d4c1ca2b235400e7d52e159117000427c73517b38607ed00208.62833bc1b5d6a.pdf

UNESCO. (2015). *17 objetivos del desarrollo sostenible*. https://onu.org.gt/objetivos-de-desarrollo/

University of Deusto. (2018). *Una introducción a Tuning Educational Structures in Europe: La contribución de las universidades al proceso de Bolonia.* University of Deusto. http://www.unideusto.org/tuningeu/images/stories/documents/General_Brochure_Spanish_version.pdf

Universidad del Valle de México. (2015). *Modelo Educativo 2015*. Universidad del Valle de México

Universidad del Valle de México. (2017). *FIMPES Self-Study Final Report 2015-2017.* Universidad del Valle de México

Universidad del Valle de México. (2018). *¿Quiénes somos?* Universidad del Valle de México https://www.universidaduvm.mx/quienes-somos

Universidad del Valle de México. (2021). *Modelo Educativo 2021*. Universidad del Valle de México

Valenzuela F. & Cuellar A. (2022). *#repensar la universidad. Construir una visión de futuros para las universidades*. Linkedin https://www.linkedin.com/pulse/visión-de-futuros-para-las-universidades-fernando-valenzuela-migoya/

Vargas M. (2008). *Diseño curricular por competencias*. Asociación Nacional de Facultades y Escuelas de Ingeniería. https://docplayer.es/31884557-Diseno-curricular-por-competencias-maria-ruth-vargas-leyva.html

Villa A. & Poblete M. (2007). *Aprendizaje basado en competencias. Una propuesta para la evaluación de las competencias genéricas*. Bilbao: Editorial Mensajero, ICE Studies and Research Collection. University of Deusto https://doi.org/10.15581/004.16.23342

Villaroel, P. & Bruna, D. (2014). Reflexionando sobre las habilidades genéricas en la educación terciaria: un desafío pendiente. *Revista Psicoperspectivas. Individuo y Sociedad, 13*(1) 1-34. https://dx.doi.org/10.5027/psicoperspectivas-Vol13-Issue1-fulltext-335

Yulk, G. (2008). *Liderazgo en las organizaciones*. Prentice Hall https://elibro.net/es/ereader/uvm/53831

Zabalza, M. Á. & Lodeiro, L. (2019). El Desafío de Evaluar por Competencias en la Universidad. Reflexiones y Experiencias Prácticas. *Revista Iberoamericana de Evaluación Educativa 12*(2), 29-48. https://dialnet.unirioja.es/servlet/articulo?codigo=7114195

Zuñiga C., M.; Poblete, Á.; Vega G., A. (2008). *Desarrollo de competencias en un contexto de aseguramiento de calidad.* Centro interuniversitario de desarrollo–cinda; Grupo operativo de universidades chilenas; Fondo de desarrollo institucional–mineduc–Chile. https://cinda.cl/wp-content/uploads/2008/12/diseno-curricular-basado-en-competencias-y-aseguramiento-de-la-calidad-en-la-educacion-superior.pdf

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