Instructional design according to the ADDIE model in initial teacher training

Diseño instruccional según el modelo ADDIE en la formación inicial docente

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Keywords
Teacher training; instructional design; virtual learning environments; ADDIE; learning assessmentc

ABSTRACT

This essay analyzes the instructional design from model ADDIE in the educational initial formation, in a course of seventh semester of the Degree in Special Education during 2020-2021 at the Benemérita Escuela Normal Veracruzana(BENV). The qualitative methodology used was the teacher's research-action (Ebbutty Elliot, 2000) with triangulation strategies of method and subjects (Santos-Guerra, 1990). It articulates the description of the instructional design with the configuration of virtual learning environments, understood like spaces of education-learning and evaluation, an expansion of space and temporary possibilities from the intercommunication and interconnection mediated by the use of technology (Bustos& Coll, 2010). The five phases that structure the ADDIE model are described and analyzed from various angles such as disciplinary and pedagogical dimension of Special Education, cross-institutional dimension, technological dimension, which allows assessing the links between participants. Learning focused on learning to learn and motivational learning were linked to broad and complex instructional processes for teacher training schools as Analysis Design, Development, Implementation and Evaluation.

Palabras clave
Formación docente; diseño instruccional; entornos virtuales de aprendizaje; ADDIE; evaluación de aprendizajes

RESUMEN

Este artículo analiza los alcances del diseño instruccional desde el modelo ADDIE en la formación inicial docente en un curso de séptimo semestre dela Licenciatura en Educación Especial, durante el ciclo 2020-2021, en la Benemérita Escuela Normal Veracruzana (BENV), México. La metodología cualitativa utilizada fue la investigación-acción del profesor (Ebbutt y Elliot, 2000), con estrategias de triangulación de método y sujetos (Santos-Guerra,1990). Se articula la descripción del diseño instruccional con la configuración de entornos virtuales, entendidos como espacios de enseñanza-aprendizaje y evaluación, que trascienden la organización de contenidos, y se apuesta por una expansión de posibilidades espaciales y temporales a partir dela intercomunicación e interconexión asociadas al uso mediado por la tecnología (Bustos y Coll,2010). Las cinco fases que estructuran el modelo ADDIE se describen y analizan desde las aristas: dimensión disciplinar y pedagógica de la educación especial, dimensión transversal-institucional y dimensión tecnológica, lo que permite valorarlos vínculos entre los participantes, privilegiar las diferencias y los requerimientos emergentes. Se identifican los aprendizajes centrados en aprender a aprender y los aprendizajes motivacionales vinculados a los procesos de análisis, diseño, desarrollo, implementación y evaluación instruccional, amplios y complejos para las escuelas formadoras de docentes.

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INTRODUCTION

Interest in teaching practices and their impact on learning processes has been a topic of considerable study (Reiser, 2001). Currently, instructional design involves increasingly complex interactions between the learner, the teacher, the content and its context. A relationship is expected from the implementation of the design: not only the student's thinking activity, but also to generate an impact "on the construction of the subject's own identity and on the way he or she relates socially" (Cabrera, 2010, p. 1).

This article analyzes the instructional design from the ADDIE model in initial teacher training to identify the learning of the participating students. The work is located in the subject Workshop on Analysis of Teaching Work and Development of Didactic Proposals I, taught in the seventh semester of the Bachelor's Degree in Special Education, during the 2020-2021 cycle at the Benemérita Escuela Normal Veracruzana (BENV), in Mexico. Although this analysis workshop (TA) is designed to be offered face-to-face, due to the confinement forced by Covid-19 it was adjusted to be developed in remote mode. According to Torras (2021), the purpose of this mode during confinement differs from distance education, as it is intended to provide (quickly and from a simple configuration) a "temporary access to instruction and instructional supports" (p. 127).

Each emergent response or instructional design represents an opportunity to articulate different pedagogical, technological, content-specific elements and contextual and emergent conditions that condition the teaching-learning process. Instructional design encompasses "learning and performance analysis, learning problems, design, development, implementation, evaluation and management of instructional and non-instructional processes and resources aimed at improving learning and performance in a variety of settings" (Reiser, 2001, p. 53). Because of this, the dissemination of experience analysis to configure learning environments during pandemic times (Albo, Rodríguez, & Velázquez, 2021), specifically in the field of initial teacher education, represents an element that can support the academic community, a benefit mentioned by Ozmen, Tepe, & Tuzun (2018).

ADDIE MODEL

No clear source is identified when researching the origin of the ADDIE model. Molenda (2003) recognizes a first use as an acronym of general use of the terms *analize* (analysis), *designe* (design), *develop* (development), *implement* (implementation) and *evaluate* (evaluation), as elements of all instructional design. In addition, these elements represent the five phases of the model, considered as simple but interactive, since it requires an evaluation to continue the process, so that the initial, procedural and final

evaluation is prioritized at all times, thus giving the model a highly proactive character (Maribe, 2009).

Molenda, Pershing and Reigeluth (1996) acknowledge the introduction of the term ADDIE intentionally to represent a model that emphasizes the interconnections between the development of instructional interventions and improvement interventions, whose process involves analysis, design, development, implementation and evaluation. Thus, a general use of the acronym, implicit in instructional models, has transitioned into more complex narrative descriptions that distinguish it as a model (Molenda, 2003).

The ADDIE model can be used for a variety of purposes because it provides a structure that allows for the generation of a variety of instructional interactions. Nichols and Greer (2016) employed the model in information literacy from their work as librarians. Among the advantages they found: student engagement, learning and assessment, work on specific standards, and improved learning practices. On the other hand, in the ADDIE model proposed by Santamaría-Muñoz (2021), autonomous work and collaboration were factors that privileged instructional design work. In the health area, Gavarkovs, Blunt and Petrella (2019) refer to the implementation of the model in the design of a platform to support the implementation of intervention communities during the development of a health program. This experience highlights the analysis phase to identify the audience towards which the design is directed, as well as the multidisciplinary review of the literature base for the instructional design.

In the pedagogical field, there are design proposals at the basic training level, such as the study by Ngussa (2014), which sought the evaluation of the ADDIE model in secondary school teachers. The study concluded that the phase to which the highest priority is given is implementation, while evaluation is downplayed. The use of the ADDIE model has been linked to other variables, as in the case of Nadiyah and Faaizah (2015), whose research emphasized the identification of factors and elements needed to develop collaboration in online learning and propose a collaborative project based on the collaborative learning model.

In the regional environment, the work of Castellanos and Rocha (2020) was identified, who implemented a distributed and integrated software architecture in a web system and Moodle, based on the ADDIE model. This facilitated access to theoretical-practical study contents through b-learning, within the subject of Physics at secondary level, in order to promote a greater degree of autonomy in the learning of students in Oaxaca, Mexico. For his part, Medina (2019) evaluated a proposal called “Integration of ICT in the classroom”, where he used the ADDIE model to strengthen pedagogical and technological competencies in teachers. Although a pedagogical trend towards constructivism is recognized, low levels of technological appropriation were also

identified. The emphasis of instructional design lies in the sharing of authentic and real problems in learning environments, where it seeks to favor the intellectual and emotional involvement of students (Reiser, 2001; Santamaría-Muñoz, 2022).

This paper analyzes the instructional design based on the ADDIE model in initial teacher training to identify the learning of participating students. It seeks to benefit the academic community interested in continuous evaluation processes, oriented to deep and autonomous learning of those who will be responsible for educating Mexican children. This experience articulates the description of instructional design with the configuration of virtual environments, understood as teaching-learning and evaluation spaces, which go beyond the organization of contents and bet on an expansion of spatial and temporal possibilities based on intercommunication and interconnection, associated with the mediated use of technology (Bustos and Coll, 2010).

CONTEXT

The experience was developed within the course Workshop on Analysis of Teaching Work and Development of Didactic Proposals I, taught in the seventh semester of the Bachelor's Degree in Special Education within the BENV, which took place during semester A of the 2020-2021 school year. The course is located in the 2004 Curriculum currently offered (with the exception of the 2018-2022 generation, which is taking the current national plan designed in 2018).

The academic requirements are different during the fourth year, since it is a space for practice in real conditions. In order to pass the subject, teacher training students act as co-responsible teachers in the care of students in special education services during practice periods. Alternately, during seven weeks distributed in the semester, they attend in small teams the Workshop on Analysis of Teaching Work and Elaboration of Didactic Proposals I. Each team is coordinated by an advisor. Each team is coordinated by an advisor (teacher trainer) and the teachers are organized in a fourth-year academy. The present case represents the work of an advisor teacher and eight students (one male and seven female) enrolled in seventh grade, belonging to the 2017-2021 generation. The participants carried out their internships in Regular Education Support Service Units (USAER). (2010).

METHODOLOGY

Data collection and analysis strategies were used from the qualitative paradigm in order to systematize the teaching, learning and evaluation actions implemented through an instructional design. From this

paradigm, reality is assumed as "a heterogeneous, interactive and socially shared experience, interpreted by individuals" (McMillan and Schumacher, 2008, p. 401). Likewise, it identifies a "preponderant character of action" (Rodríguez, Gil and García, 1999, p. 28), so methodologically it opted for the teacher action-research method.

According to Ebbutt and Elliot (2000), the professional work of teachers goes beyond the technical. Action research and professional development represent a binomial that seeks to improve the quality of teachers' work through systematic explanations and connections between the different factors involved in order to achieve a better understanding of a given educational problem. For this reason, the strategies of triangulation of subjects and method (Santos-Guerra, 1990; Izcara, 2014) were used to organize and compare the information collected.

To explain what happened, the four moments proposed by Lewin (cited in Rodríguez *et al.*, 1999) were taken up again, from action research: planning, acting, observing and reflecting. Action research is considered as "a script about the event in question, relating it to the context of mutually interdependent contingencies, that is, events that are grouped together because the occurrence of one depends on the appearance of the others" (p. 53). These investigative moments were linked to the phases of the ADDIE model (see Table 1).

Table 1. Investigative moment of the teacher's action-research and the ADDIE model

Investigative moments of the teacher's research-action	Phases of the ADDIE model*
Planning	Analysis, design and development
Performance	Implementation
Observation	Implementation
Reflection	Evaluation

* In each of the phases of the ADDIE model, iterative moments can be identified that involve planning, acting, observing and reflecting.
Source: self made.

ANALYSIS

This phase involved three lines of work: 1) actions were carried out that facilitated the identification of student profiles, 2) the educational programs corresponding to the 2004 study plan were analyzed, and 3) the institutional programs that are part of the BENV school culture (such as the strengthening program and the school tutoring program) were

reviewed, since the advisors are also assigned as tutors for the training of their students in the last year of their degree studies.

Identification of student profiles

A diagnostic process was carried out to gather personal, academic and family information on the students, since the last year of initial training represents the attainment of a degree and the possibility of entering the professional teaching service. As an academy, it was decided to use four instruments to collect initial information:

- Exploration questionnaire, to collect general student data: family and family dynamics, socioeconomic profile, family and personal medical history, academic, tastes and interests.

- Self-assessment scale on teaching skills and competencies, knowledge of basic education curricula and institutional management.

- Interview record, whose questions made it possible to identify previous experiences, expectations and concerns about the expectations and concerns about the fourth year of initial training: communication skills, general knowledge of special education and attitudes expressed during the interview expressed during the interview.

- Diagnostic rubric, filled out by the interviewing teacher to integrate an individual profile of the student regarding his or her personal situation, observation and practice experiences, expectations and concerns about entering the fourth year, attitudes presented, basic intellectual and communicative skills, knowledge about basic education plans and programs, teaching and institutional management competencies in special education services.

Analysis and adjustment of study programs of the 2004 syllabus

We started from the features of the graduate profile determined by the current study plan, as well as the characteristics of the beginning of the school cycle, which establish the distance teaching practice in special education services and in a generalized manner throughout basic education in the country. The review of the parameters, profiles and indicators of the entry to the professional teaching service 2019-2020 (Secretaría de Educación Pública, SEP, 2019) was also valued for the construction of the relevant exit competency according to the prevailing conditions in TA learning in the cycle under review (2020-2021).

Institutional programs

The tutoring program is defined as a "substantive teaching activity that involves a systematic process of educational actions of guidance and accompaniment focused on the student, on academic and personal aspects" (BENV, 2020, p. 1). This accompaniment is proposed as an institutional strategy to enhance the formation of students throughout their careers. The students assigned to the advisory team constituted the group of students in tutoring during their fourth year, so it was considered pertinent to triangulate the diagnostic information with the activities demanded by the institutional program.

Likewise, the central idea of the academic strengthening program for students in teacher training schools, promoted by the General Directorate of Higher Education for Teachers (DEGESuM, 2010) -formerly the General Directorate of Higher Education for Education Professionals (DGESPE)- was rescued in order to focus actions to overcome the problems identified. Although it is a program that is no longer in force, the undergraduate academy continues with actions that solve the training needs detected in the generation served through a specific project.

DESIGN

After conducting a triangulation analysis by method (Santos-Guerra, 1990), the design of the learning environment was planned, which included the selection of an educational platform that would house the learning activities, concretize the project-based methodology and a continuous learning-oriented evaluation process. Based on the analysis of the diagnostic evaluation, the design was organized as described below.

The disciplinary and pedagogical dimension of special education

In response to the contents emanating from the guidelines established for the work in the seventh and eighth semesters, as well as from the work in the fourth year advisors' academy, the TA course was organized under the project methodology. Three projects were planned to be developed during the semester with the objective of "taking part in a situation, problem, dynamic or relationship to favor some kind of transformation" (Gómez and Alatorre, 2014, p. 3).

Project 1. Preparation of a diagnostic process. It integrated theoretical elements on evaluation and its purposes with the processes of approaching the school of practice, which allowed the review, collection and processing of field information to detect barriers to learning and participation present in the social, school or classroom context, as well as the identification of specific educational support needs.

Project 2. Socio-intervention proposal and follow-up. Based on the diagnostic process, the teachers in training designed an intervention plan to mobilize theoretical, methodological and ethical elements that favored the attention of students enrolled in the USAER special education service.

Project 3. Design of a reception paper. Referred to the selection of a topic of interest emanating from the socio-intervention proposal and its transit to consider it as an object of study. The elaboration of a preliminary research project was proposed, understood as a written document that defines the topic to be investigated, its justification, the objectives, the foundations that support the research, the method to be used, the establishment of a timetable, the materials and the necessary resources (Schmelkes and Elizondo, 2012).

Collectively, the following competency was proposed at the end of the course: design, evaluate and reflect on complex teaching intervention processes, in times of confinement, recognizing the influence of different contexts (school, classroom, social and family), with commitment and responsibility, to theoretically support their diagnostic evaluation and the design of argued didactic proposals, as well as to evaluate the training process through personal analysis and socialization of their experiences. As an agreement of the academy, the instruments, rubrics and performance scales to be used in all the advisory teams during the implementation of the three projects were designed.

Transversal-institutional dimension

In response to the comprehensive view of initial teacher training and institutional programs that enrich learning in a cross-cutting manner, a sub-academy of fourth-year advisors considered the design of support activities from the institutional tutoring program. Although this program addresses personalized training needs, it was decided to have an activity guide, as well as resources to support study habits, self-care strategies and mental health, which were enriched during the semester. The activities were socialized on a Google Sites web page, called Academic Tutoring (to be explained in the next phase of development).

In relation to the academic strengthening program, and as a follow-up to a year of educational attention in remote mode, research skills were assessed through a diagnosis and it was decided to implement a series of actions organized to foster informational skills. This need is justified due to the fact that the 2004 Special Education curriculum does not contain curricular spaces intended for this purpose, unlike the 2018 plan.

Technological dimension

The design was planned to make use of Google's G Suite for Education package, since the BENV recently granted institutional accounts to both

its faculty and students, in addition to training through a refresher course, called Technology-mediated Planning. In addition to the author's professional background, it was possible to generate an articulated and collaborative system with different tools, such as Sites, Classroom, Drive, Meet, Jamboard, Calendar and Gmail, mainly.

DEVELOPMENT

Starting with the design phase, the advisors that make up the fourth year academy set themselves the task of compiling the materials to be used, producing the necessary resources and organizing them through Google's G Suite for Education.

Disciplinary and pedagogical dimension of special education

The two consultants, whose teams of trainee teachers were doing their practicum in real working conditions in USAER services, designed a web page that attractively organized the various activities to achieve the program's global competency.[1] The page was linked to the Classroom platform for the submission of assignments, review of criteria to be evaluated, and communication through comments and e-mails. The activities were automatically added to the Google Calendar tool, so that students had the opportunity to view the assignments in the Google Calendar. Figure 1 shows an example of the organization of the activities.

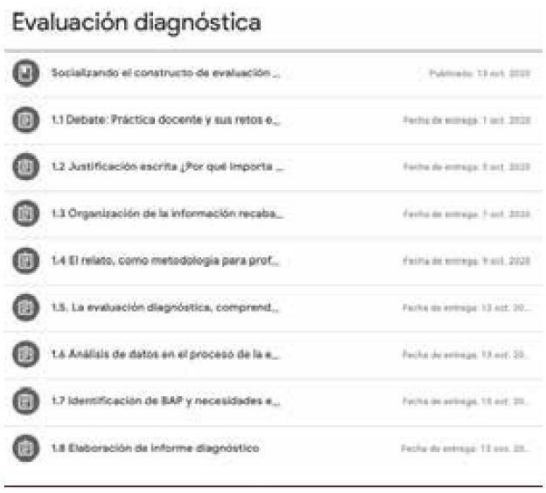


Figure 1. Example of organization of activities in Classroom.
Source: taken from Classroom.

[1] The site can be viewed at Google Sites: https://sites.google.com/normales.mx/taller-de-analisis-usaer-2020/página-principal?authuser=1

Transversal-institutional dimension

Regarding the institutional mentoring program, a sub-academy of advisors generated a page in Google Sites, where both the activities to accompany the students' training and the emotional support resources were organized, mainly as a result of the health crisis. The resources were videos on mindfulness, positive affirmations, grief, thanatology, music for study and concentration. This page allowed guiding the tutoring actions in the different counseling teams, so the tasks were focused on the clarification and socialization of a life project, an individualized action plan that meets the personalized formative needs, its follow-up and evaluation at the end of the semester.[2]

Regarding the activities derived from the academic strengthening program for initial training in the Bachelor's Degree in Special Education, a site entitled Investigando (Researching)[3] was developed. The proposed activities were oriented to strengthen research skills to support the different stages of the elaboration of socio-educational projects, as well as the reception document. The tasks were: information search skills on the Internet, use of Boolean operators, configuration of personal libraries, use of search engines and institutional repositories, use of reference manager, intellectual property and information organization. Likewise, the tasks designed in Classroom for the USAER team prioritized the promotion of research skills (see Figure 2).

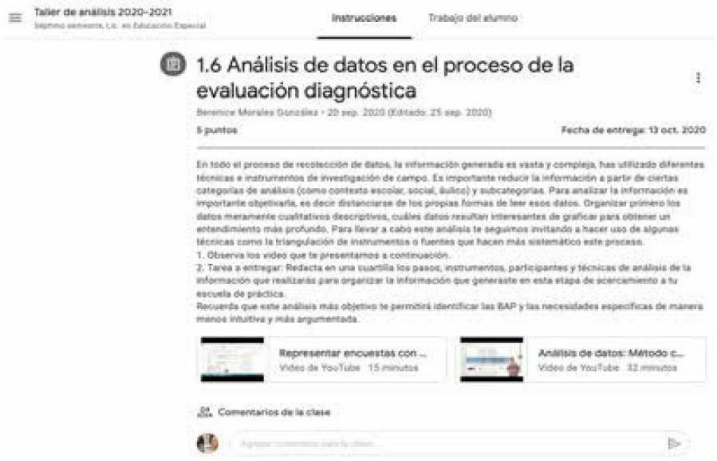


Figure 2. Example of a learning activity linked to the development of research skills.
Source: taken from Classroom.

[2] Available at: https://sites.google.com/normales.mx/tutoriaivleebenv/inicio?authuser=0
[3] Available at: https://sites.google.com/normales.mx/proyectoinvestigando/p%C3%A1gina-principal

IMPLEMENTATION

This phase involved the generation of a virtual learning environment to involve student participation (Maribe, 2009).

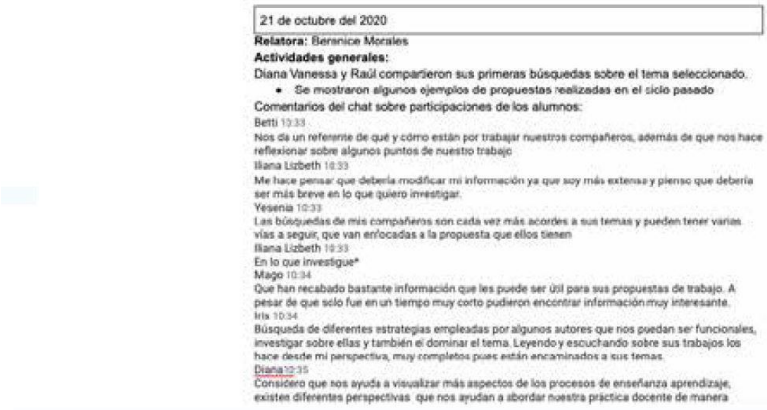
The disciplinary and pedagogical dimension of special education

The socialization spaces that were interwoven were important during the execution of the activities, both synchronous and asynchronous. It is worth mentioning that the TA course was carried out entirely in remote mode. The activities that were considered as articulatory axes are shown in Table 2.

Table 2. Communication strategies within the disciplinary and pedagogical dimension of special education

Synchronous	Asynchronous
Virtual classes through Meet platform	Recording of sessions and their organization in Google Drive folders
Virtual counseling space by couples or individually, through Meet platform	Log of the group sessions where the activities, photos and agreements of each session could be consulted, organized in a Google Drive folder
	Use of WhatsApp group for communication of matters of immediate interest
	Private comments and comment bank on the Classroom platform

Figure 3 shows an example of the class log, which could be consulted by any of the participants, in case of doubts or difficulties in the Internet connection during the course of the session. Some reflections written in the chat, open during the Meet sessions, were written down in the logbook.


21 de octubre del 2020

Relatora: Berenice Morales

Actividades generales:

Diana Vanessa y Raúl compartieron sus primeras búsquedas sobre el tema seleccionado.

- Se mostraron algunos ejemplos de propuestas realizadas en el ciclo pasado

Comentarios del chat sobre participaciones de los alumnos:

Betti 10:33
Nos da un referente de qué y cómo están por trabajar nuestros compañeros, además de que nos hace reflexionar sobre algunos puntos de nuestro trabajo
Iliana Lizbeth 10:33
Me hace pensar que debería modificar mi información ya que soy más extensa y pienso que debería ser más breve en lo que quiero investigar.
Yesenia 10:33
Las búsquedas de mis compañeros son cada vez más acordes a sus temas y pueden tener varias vías a seguir, que van enfocadas a la propuesta que ellos tienen
Iliana Lizbeth 10:33
En lo que investigue*
Mago 10:34
Que han recabado bastante información que les puede ser útil para sus propuestas de trabajo. A pesar de que solo fue en un tiempo muy corto pudieron encontrar información muy interesante.
Iris 10:34
Búsqueda de diferentes estrategias empleadas por algunos autores que nos puedan ser funcionales, investigar sobre ellas y también el dominar el tema. Leyendo y escuchando sobre sus trabajos los hace desde mi perspectiva, muy completos pues están encaminados a sus temas.
Diana 10:35
Considero que nos ayuda a visualizar más aspectos de los procesos de enseñanza aprendizaje, existen diferentes perspectivas que nos ayudan a abordar nuestra práctica docente de manera

Figure 3. Example of the log of group sessions of the TA subject, stored in the shared folder in Google Drive.

Source: taken from Classroom.

Transversal-institutional dimension

Although the activities derived from the tutoring program were systematized in the formats suggested by the program, it is important to emphasize that initial teacher training is linked to life projects, from a highly social character. For this reason, although sessions were assigned to record the follow-up of the tutoring actions planned at the beginning of the semester, the emotional bond and the recognition of the singularities of each student were elementary, especially in a semester that involved mobility to accompany sick family members, death of relatives, changes in economic situation, adjustments in family dynamics and daily activities, in addition to difficulties in accessing the Internet, among others.

The author of this paper coordinated the activities of the *Investigando* project, which linked and enriched the development of the learning tasks designed in the academy, as they promoted the application of strategies to carry out the projects and strengthen the perception of the strategies used in online learning. All activities were socialized within the team, and those related to the use of the Mendeley manager and the use of source organization through Google Scholar were socialized with all advisory teams through synchronous sessions, due to the complexity involved.

EVALUATION

Disciplinary and pedagogical dimension of special education

With regards to the evaluation of learning, it was important to harmonize the agreements derived from the fourth year academy regarding the evaluative design, understood as a "reference scheme that organizes the elements involved in an evaluation" (Sanmartí, 2010, p. 134), aspects related to the objectives, agents, protagonists, instrumentalization and temporization. In addition, the evaluation was enhanced as a component of the didactic and achievable process, "which is located in the improvement of the didactic process" (Rosales, 2000, p. 74). For this reason, the participation of the different actors involved in the AT subject was repeatedly prioritized in this phase in order to assess the achievements and challenges with the purpose of rethinking the didactic actions and the proposed routines.

The ADDIE model emphasizes the evaluation of the teaching-learning process, so it implies the redesign or constant formulation of the activities initially proposed, which is linked to the action-research methodology. Three types of evaluations were organized that allowed the continuous readjustment of the teaching-learning process: a) evaluations focused on the tasks derived from the program adjusted by the undergraduate academy and by the institutional programs that were developed in parallel; b) continuous evaluations focused on daily learning, which were recorded

in the class recordings and in the logbook; c) an evaluation per TA period. Regarding the task-focused evaluations, the evidence and evaluation criteria established from the design phase were attended to (see Table 3).

Table 3. Evidence and values assigned by fourth year academy, for the TA course

Block I	Percentage (%)	Block II	Percentage (%)
Instruments used in the diagnostic process	10	Systematization of didactic proposals	35
Diagnostic report	20	Progress of the reception document	30
Design of didactic proposals	35	Actions of the strengthening and tutoring program	15
Actions of the strengthening and tutoring program	10	General plan for the teaching work period	5
General plan for the teaching work period	10	Team participation and individual contributions	15
Team participation and individual contributions	15		
Total	**100**		**100**

Note: Evidence established by the degree academy in the design phase based on the information collected in the analysis phase.

By prioritizing the constructive and reiterative process of learning assessment, intermediate tasks such as debates, case studies, personal reflections and video analysis were designed to facilitate continuous progress. In addition, in each task assigned in Classroom, comments were made with the comment bank function, as well as private comments on the platform, which favored a personalized follow-up on the construction process.

Self-assessments and co-assessments of the activities developed were promoted, which were communicated orally, accompanied by the use of the Meet or Jamboard platform chat as a collective whiteboard, so that ideas, doubts and comments were recorded in the class log. Likewise, at the end of each TA period, a script of questions was proposed through Google Forms to identify motivational elements, content learning and interaction processes within the group (see Table 4). For the analysis we used the subject triangulation strategy (Santos-Guerra, 1990).

Analysis of the students' responses allowed adjustments to be made to the development of the TA, such as reading circles on topics of interest, peer review according to work projects with similar themes, modeling when socializing work strategies, such as the development of virtual classrooms for the attention of students with learning difficulties in the field of mathematical thinking, among others. Some activities were carried out outside the TA periods.

Table 4. Student evaluations at the end of the four periods of the TA carried out in the semester

Period 1: from October 13 through October 23, 2020	Period 2: from November 23 through November 27, 2020	Period 3: from December 7 through December 18, 2020	Period 4: from January 18 through January 22, 2021
Motivational-attitudinal elements towards learning			
"[I felt] very happy, since for the first time, in a deeper way, we analyzed the topics and there was a better approach and trust between everyone "	"[I felt] stressed and pressured at first because I had no idea and didn't understand very well what I had to do, but it also allowed me to ask constantly to try to make the work more developed. "	"I really felt very supported, with the necessary guidance to improve my work. I cleared a lot of doubts. I felt confident to be able to ask and express my doubts"	"[I felt] a bit pressured with so many aspects that need to be reviewed further. I feel committed to the work and projects for a really relevant delivery and progress "
"At first [I felt] stressed by the large number of tasks, but as we went, I felt better because everything was explained to us"	"Honestly [I felt] a little more pressured, since in addition to the workshop activities I had to make plans and materials for the following week of intervention"	"[I felt] a little overwhelmed with work, but at ease"	"[I felt] very good, and a little stressed at the end"
Main learnings			
"Refined information search, delimitation of purposes and needs and information structuring"	"Continue investigating various studies that talk about the same topic that I am developing, continue with the organization of theoretical elements"	"Being in constant learning, researching, interpreting readings and technological tools that serve me for school and professional life"	"The triangulation of information and data collected to organize relevant data and synthesize all the elements necessary for a good qualitative research document"

Period 1: from October 13 through October 23, 2020	Period 2: from November 23 through November 27, 2020	Period 3: from December 7 through December 18, 2020	Period 4: from January 18 through January 22, 2021
"It ranges from the analysis of all the information obtained in the period of observation and assistantship to the construction of new concepts, informations and forms of search"	"Aspects of the thematic lines for the construction of the receptional document. Definition of construction aspects. How to prepare a preliminary research project investigation action"	"The organization of my information, the structuring of a well structured index. A broader overview of the relational, pragmatic and epistemological aspects of my practice and students for continuous improvement. Elements to cite and organize my documents virtually. Creation of a specialized website"	"The organization of the activities obtained as findings and the systematization of data"
Suggestions for TA improvement			
"A video call once a week with the entire cubicle to discuss progress, difficulties and doubts"	"That we continue like this, sharing our work"	(*)	"Promoting the points of view of all colleagues, I believe that our own practice would be greatly nurtured"
"Define a schedule per week to connect and socialize some points"	"Be a little more specific in the explanation and continue with the current way of working"	(*)	"Support us more in our work individually, explain in more detail the work to be done"

(*) The suggestions of the third period of TA were not registered, only some fragments obtained are noted for exemplification purposes.

DISCUSSION

This instructional design experience transcends the vision of Martin (2011), since it considers the ADDIE model as generic, a flexible guide to elaborate instructional material. This paper integrates different edges for the configuration of virtual learning environments aimed at favoring complex interactions between students, teachers, content and conditions, not only of the advising teacher and her students, but also of the institutional elements that take shape in the collegiate work and school

programs (such as the tutoring program and the academic strengthening program for students). All this in the context of the pandemic, together with the educational needs and problems that arose from the schools of practice, conditions that influenced and gave life to both the development of the projects and the nature of the teaching-learning process mediated by technological tools.

The evaluative component of the instructional model is valued due to the fact that it implies increasing learning opportunities (Nichols and Greer, 2016). Emphasizing feedback modifies teaching-learning conditions (Ozmen *et al*., 2018). The evaluation strategy by work periods contributed with adjustments such as group organization from attention spaces for the whole team (the eight students), subgroups according to the topic of common interest to be analyzed or individual spaces according to personalized requirements.

Playful and didactic dynamics were included as spaces for sharing among peers, together with those strategies that had been successful in their teaching practice. An important finding throughout the four periods of the TA was the participants' appreciation of the learning to learn processes, such as the organization of information, the search for information, the systematization of data, the linking of observed elements and the construction of conceptual elements, as well as motivational and attitudinal learning.

This finding is consistent with the studies of Dawson, Carless and Lee (2020) regarding what makes feedback effective. Their results indicate that the conceptualization of feedback has shifted from being considered important task-centered information to information focused on schemas or study strategies. It is important because it highlights the pedagogical view regarding the teaching competence to distinguish what happens on a daily basis in the teaching-learning process and to recognize that interactions are the nodal point of this process (Fierro and Fortoul, 2017). The participants' evaluation of their own learning is framed in an instructional design focused on evaluation, and from its planning, complex relationships with the context in which learning takes place are recognized.

Instructional design is assumed from the perspective of Gavarkovs *et al*. (2019), considering it a field that encompasses the analysis of the conditions to favor learning, in addition to its design, development, implementation and evaluation, the management of processes -whether instructional or not-, as well as the learning problems that emerge in the process, the resources aimed at improving learning (Albo, Rodríguez and Velázquez, 2021) and the performance of all those involved.

CONCLUSIONS

process of participating students, related to motivational-attitudinal elements and learning to learn processes. These scopes are recognized from a systematic analysis of the elements and interactions in a continuous adjustment of the implementation of an instructional design that highlights evaluation.

The results derive from an instructional design phase that involved broader dimensions than pedagogical or disciplinary content: it incorporated emerging institutional and contextual elements that influenced the implementation of the design. The teacher action-research methodology facilitated the analysis of both instructional and non-instructional elements, i.e., those that were not previously planned but emerged to be considered and to achieve learning centered on learning to learn with a motivational charge. It should be noted that this TA experience was developed with a group of eight students, working 20 hours a week for seven weeks a semester, which meant a clear advantage in the follow-up of each one of them. Even so, it represents a proposal for analysis for initial teacher training.

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