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*Original Paper*

## Virtual Education in Chile, an Example of a New Space for Learning

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### Abstract

Virtual Education was born in 2002 as a joint project between the Center for Pedagogical Improvement, Experimentation, and Research (CPEIP) and the Enlaces Education and Technology Center.

CPEIP has developed a line of distance teacher training through the Internet, running several courses since 2002, and Enlaces during the last for 15 years, the CPEIP has dedicated its efforts to providing teachers and students with access to educational opportunities associated with new information and communication technologies. Both institutions decided to join forces and develop a joint project that integrates CPEIP's distance learning teacher training program, which until now focused on curriculum updating, with various strategies to support the adoption of ICTs and their curricular integration.

**Keywords:** Virtual Education, Virtual Classrooms, ICT Skills, Digital Literacy

### Introduction

Virtual education using e-learning and b-learning for teacher training is an initiative that covers the entire Chilean territory and is funded by the Chilean Ministry of Education through the Center for Pedagogical Improvement, Experimentation, and Research (CPEIP). It was developed by the Center for the Development of Innovations in Education. The training is part of the curriculum reform framework and incorporates ICT resources into learning and training activities teaching.

This modality was born in the context of a teacher training program supported by a virtual component implemented by the CPEIP. A recent study conducted within the framework of the Enlaces project shows that 92% of schools have technological infrastructure and 76% of teachers have been trained in the use of ICTs, a result of the implementation of the Enlaces project. Furthermore, the penetration of ICT use among teachers is growing, with 80% of teachers having equipment at home, 51% of them with Internet access, and 58% of them with broadband (Collect and Enlaces 2004).

The development and implementation of the experience included: a) the selection and training of tutors; b) the pedagogical design of the course; c) the design and implementation of the course on the Moodle platform; d) the development of various resources to support the content; e) the application of pre- and post-tests and summative and formative assessments.

The course trained 786 teachers nationwide, divided into 29 courses, with an average of 27 students per course. For tutorial support during course implementation, a community of tutors was created to assist teachers in their tutoring tasks in the administrative, technical, social, and pedagogical areas. The work methodology placed the teacher at the center of learning, as a learner who autonomously defines their learning path. In this context, participants build knowledge through interaction with the materials, the tutor, and their peers.

### Materials and methods

The development and implementation of the experience included:

- *The selection and training of tutors*, for which Salmon's e-modetaring model was used, creating activities as learning objects. A profile was designed to select the tutors, and they were trained through

a course in the e-learning modality that concluded with a meeting in person.

- *pedagogical design of the course*, which has been conceived under an interactive model for teaching mathematics whose conception is very close to the expression of the Madison Project, which is summarized in: "conjecture - try, put the idea to the test - observe what happens and... learn" as continue.
- *design and implementation of the course on the Moodle platform* ; it included the organization of the contents in units, which have three areas: *Activities and Evaluation*: it is found with the set of activities organized weekly, within the week by day and within the day, the specific activities with a brief description and estimated development time, considers a weekly formative evaluation and a qualification per unit; *Interactions*: includes a discussion forum, a space for queries and a bulletin board; *Library*: groups together different resources such as readings, guides, Applets, training material reference.
- *Development of various resources to support the content*: guides, reference material, applets ( a component of an application that runs in the context of another program, for example in a web browser), readings, references to sites, among others. resources.
- *The application of a Pre and Post Test*: A pre-test was applied at the beginning of the course and a post-test at the end. post-test.
- *Obtaining and analyzing information such as*: statistical data on participation in face-to-face classes, evaluations with grades on the platform and registration of participation in interactive spaces on the platform.

## Results and discussion

This section presents the main results of the course, which were obtained through the various data collection systems, such as: the pre- and post-tests, attendance at in-person sessions, the results of the summative assessments on the platform, and data obtained from the platform regarding participation in the interactive spaces.

### Participation in the course

During all the weeks, the active students in the course were monitored, issuing a weekly report which shows the number of active and inactive students in the week, in addition to counting those without any connection in the course. course.

This section presents the main results of the course, which were obtained through the various data collection systems, such as: the pre- and post-tests, attendance at in-person sessions, the results of the summative assessments on the platform, and data obtained from the platform regarding participation in the interactive spaces.

### Participation in the course

Active students in the course were monitored throughout the week, and a weekly report was issued showing the number of active and inactive students for the week, as well as those with no connection to the course. Figure 7 shows the behavior of these parameters over the 14 weeks of the course.

### Participation in Face-to-Face Sessions

The course includes three in-person sessions: at the beginning, at the end, and after the first unit of content. For these in-person sessions, the tutor was given a plan to follow with the activities to be completed and digital resources as a presentation to support them.

### Participation in exchange spaces

This section will analyze the participation of participants in the various asynchronous spaces provided for communication between the tutor and the students and among the participants themselves.

### Participation in permanent spaces

Permanent spaces are a set of tools, primarily forums, that are available for participants to use

throughout the course.

There are 165 *technical questions*, an average of 5.5 per course. These questions relate to the use of the platform and the configuration of computers to run certain applications such as applets.

in the *social forum*. Within these topics, there are varying levels of interaction that are difficult to quantify. The average is 26.3 topics opened per course. Remember that these topics are initiated and promoted by the participants themselves. There is little or no participation from the tutor, except in the welcome forum initiated by the tutor in this space. The social forum becomes a kind of "teachers' lounge" virtual.

In the *"News" section*, space is restricted to posts by the tutor only and cannot be discussed by participants. There are 624 interventions, with an average of 21.5 interventions. These correspond to information and guidance that tutors provide to their students regarding the development of activities, the submission of assessments, and evaluation criteria, among others.

#### Participation in interactive spaces

Participation in the interactive spaces, while variable across each unit, follows similar trends that are subsequently reflected in the overall results for the three units. The discussion forum accounts for the majority of participation, followed by the daily wall forum and consultations.

### Conclusions

The course sought to provide primary school teachers with a high-quality development process that allows them to build the necessary disciplinary and didactic knowledge to improve their teaching practices. This was achieved through a distance learning approach that fosters interaction with peers and the tutor within a learning community. The main conclusions are:

*High interest in participating in the course:* The interest shown by teachers in improving their skills in Geometry has been reflected in the high number of registrants and enrollments, confirming the perceived need for training in this area. A total of 1,004 participants have enrolled.

*Active students:* The number of students who have remained active in the course is highly positive. Of the 1,004 original registrants, 786 took the summative evaluation 1, representing 78% effective participation. Among these participants and those taking the final evaluation, the retention rate is 83%. Additionally, an average of 670 participants log on to the course weekly, representing 85% of the active participants.

*Content and Resource Assessment:* The course content and the various resources it provides were highly rated by participants for their quality, contextualization, and their ability to use and transfer them to classroom work. The applet applications were the most innovative within this set, as they simulate geometric constructions.

*in-person meetings* focused mainly on the opportunity to collaborate, share experiences, increase the sense of belonging, and resolve questions associated with the methodology and the use of technology. The first in-person meeting presented problems due to the scheduling and platform issues; the second one proceeded normally. Participants suggested incorporating work directly related to the content in future versions, and some, despite being a distance learning course, suggested more in-person sessions.

*The platform:* The platform has proven to be very stable, only experiencing issues at certain points during the course, primarily related to the online questionnaires. Overall, it has been highly operational and accessible. Participants have positively evaluated the way the interactive spaces have been set up. They highlight its ease of use, find it "user-friendly," and use the spaces frequently and find them useful. In this sense, we believe that providing differentiated spaces for discussion, sharing resources, clarifying doubts, and interacting on open-ended topics like the "social forum" is an element that contributes to increasing participation. The interaction and organizing it. When participants are asked about the platform, they usually end up talking about the course, and that's a sign that it has become "invisible" to them, fused into a single, larger element: the course.

*Interactions:* Participants made interesting use of the interactive spaces. The discussion forums

accounted for 66% of their contributions, while the "Mural Diary" and "Consultations" accounted for 28% and 6% of the contributions, respectively. There was also a permanent space, the social forum, which attracted the most participation, based on topics raised by participants, transforming itself into a kind of "virtual teachers' lounge." In this sense, we believe that the key to participation was the establishment of differentiated spaces for the types of contributions, which were able to channel the type of contributions that participants normally make in these courses. In addition to the tutor's animation, especially in the discussion forum, the forum itself was a key element of the program.

*Community of tutors:* The community of tutors has been a space that has allowed the coordination of the pedagogical and tutorial team that coordinates the project with the tutors, through it it has been possible to guide and support the tutors in the development of their work, the main spaces used have been: orientations, consultations, requests for information and reports, as observed the first two dedicated to the pedagogical and the remaining two to the administrative. In this community an active role of the tutors is observed, especially those who achieve better results in their courses.

*Tutors:* Tutors are key players in the development of the course. They have developed various tasks in the following areas: pedagogical, social, technical, and administrative. Their role, especially at the beginning of the course, to "delight" those who did not attend the in-person classes and during the learning times, The provision of assessments so that students complete them within the established deadlines has been vital to keeping students engaged. The work of these professionals has been highly valued by participants. They perceive constant support in the development of the course and its activities, as well as clarification of pedagogical and administrative questions. They perceive them as approachable and always attentive to resolve their concerns. A factor that has likely contributed are the weekly reports they received regarding active and inactive participants in their courses. This allows them to determine how their course is progressing in relation to their peers nationwide. Several of them have received congratulations and recognition for their achievements from the teaching team and their peers reached.

*Group Composition:* In large regions such as the Metropolitan Region, where the country's capital is located, we believe that forming groups according to the teacher's address is not optimal, as it transfers the divisions we make in the workplace to the virtual environment. Teachers from schools in poor communities with their peers, and those from more affluent schools with theirs. This is not very appropriate from the perspective of the social construction of knowledge and Vygotsky's concept of the Zone of Proximal Development. In this sense, we believe that the participation of teachers from particular establishments can become a contribution to the rest of the learning community, especially when they are integrated into groups from more popular sectors.

*Assessments:* Significant learning gains are observed at the overall and unit levels, reflected in the differences between the pre- and post-tests. Additionally, online summative assessments also reflect these gains. In our opinion, one element that is relevant is that the differences obtained in relation to the online summative tests and the pre- and post-tests reflect that the latter are significantly closer to the post-test, thereby reflecting the acquired learning. This overcomes the initial mistrust that these assessments do not reflect individual learning, since the teacher is presumed guilty of carrying them out with additional support beyond their own knowledge.

The process followed by the participating teachers has been largely successful, and certainly capable of improvement in several aspects. It has involved the development of a virtual teacher training experience that has provided participants with a new way to access content, quality materials, and interaction with peers, tutors, and specialists in a priority subject for the mathematical education of Chilean children, such as geometry. The experience of this course shows a path forward in these new forms of teacher development that integrate the use of ICT as a communication and training channel throughout professional life, providing access to a training experience that many of the participating teachers would not have had access to in traditional in-person training formats.

## References

- Anderson, T., & Kanuka, H. (1997). On-Line Forums: New Platforms for Professional Development and Group Collaboration. *Journal of Computer- Mediated Communication (JCMC)*, 3(3).

<https://doi.org/10.1111/j.1083-6101.1997.tb00078.x>

- Barberà, Ey Badia, A. (2004) *Educating with virtual classrooms: Guidelines for innovation in the teaching and learning process*. Madrid: A. Machado.
- Bates, A. W. (1995). *Technology open learning and distance education*. London/ NewYork: Routledge.
- Berge, Z. L. (1995). Facilitating Computer Conferencing: Recommendations From the Field. *Educational Technology*, 35(1), 22-30.
- Braslavsky, C. (1999). Bases, guidelines, and criteria for the design of teacher training programs. *Inter-American Journal of Education*, 19, 13-50. <https://doi.org/10.35362/rie1901054>
- Bultron, C. (2000). New trends in education. *World Communication and Information Report 1999-2000* (pp. 51-67). UNESCO/CINDOC Publishing.
- Cabero, J. (2001). The application of ICT: snobbery or educational necessity? *Digital Network*, 1. Retrieved December 22, 2002, from [http://reddigital.cnice.mecd.es/1/firmas/firmas\\_cabero\\_ind.html](http://reddigital.cnice.mecd.es/1/firmas/firmas_cabero_ind.html)
- Coll, C. (2001). Constructivism and education: the constructivist conception of teaching and learning. In Coll, C., Palacios, J., & Marchesi, A. (Eds.), *Psychological Development and Education II. Educational Psychology* (pp. 157–186). Madrid: Alliance.
- Collect & Enlaces (2004). Survey: Education in the Information Society. In *LinksStatistics*, 2005 (pp. 9-22). Retrieved May 15, 2005, from <http://www.enlaces.cl/libro/encuesta.pdf>
- Crook, C. H. (1998). *Computers and collaborative learning*. Madrid: Morata/MEC Ministry of Education and Culture (Original title: Computer and the collaborative experience of learning, London: Routledge, 1994).
- Greening, T. (1998). Building the constructivist toolbox: an exploration of cognitive technologies. *Educational Technology*, 38(2), 23-35.
- Gros, B. & Silva, J. (2005). Teacher training as educators in virtual learning spaces. *Ibero-American Journal of Education*, 36(1).
- Gros, B. (2002). Constructivism and the design of virtual learning environments. *Journal of Education*, 328, 225-247.
- Grünberg, J. (2002) REDOCENT: a research on electronic collaboration between mathematics and science teachers. *New Technologies in Education*, Montevideo, Uruguay University of the Republic. Retrieved December 13, 2003, from [http://www.prc-antel.org.uy/nte/on-line/modulo\\_3.htm#3](http://www.prc-antel.org.uy/nte/on-line/modulo_3.htm#3)
- Harasim, L., Hiltz, S., Turoff, M. & Teles, L. (2000). *Learning networks: Guide to teaching and learning online*, Barcelona: Gedisa/EDIUOC [Original version: *Learning networks. A faithful guide to teaching and learning online*. Cambridge (USA): Massachusetts Institute of Technology Press, 1995).
- Hernández, P. (1997). Constructing Constructivism: Criteria for its Foundation and Application in Schools. In Rodrigo, M<sup>a</sup>.J. Arnay, J. (Comps.). *The Construction of School Knowledge* (pp. 285–312). Barcelona/Buenos Aires/Mexico: Paidós.
- Pérez, A. (2002). Elements for the analysis of educational interaction in new learning environments. *pixel-bit journal of media and education* [online]. 19. Retrieved April 1, 2003, from <http://www.sav.us.es/pixelbit/articulos/n19/n19art/art1904.htm>
- Ryan, S., Scott, B., Freeman, H. & Patel, D. (2000). *The virtual university: the Internet and resource-based learning*. London: Kogan Page.
- Salmon, G. (2000). *E-moderating: The key to teaching and learning online*. London: Kogan Page.

Swan, K., Shea, P. Fredericksen, E., Pickett, A. Pelz, W., Maher, G. (2000). Building knowledge building communities: consistency, contact and communication in virtual classroom. *Journal Educational Computing Research*, 23(4), 359-381.  
<https://doi.org/10.2190/W4G6-HY52-57P1-PPNE>

Vygostky, LS (1978). *The development of higher psychological processes*. Barcelona: Criticism.