ARTICLE

Academic writing supported by digital templates in teacher training

Beatriz Figueroa Sandoval

bfiguero@udec.cl
Adjunct Lecturer, Department of Curriculum and Instruction,
Faculty of Education, University of Concepción, Chile

Mariana Aillon Neumann

maillon@udec.cl
Collaborating Lecturer, Department of Curriculum and Instruction,
Faculty of Education, University of Concepción, Chile

Andrés Fuentealba Urra

ffuentealba@udec.cl
Master's Degree Student in Applied Linguistics, Faculty of Humanities and Arts,
Universidad de Concepción, Chile

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Abstract

This article describes the experience of creating and piloting a digital writing template in blended learning mode in order to optimise essay-writing strategies and to formalise hypertext use in academic literacy. The methodological intervention was applied to a sample of 32 students of General Elementary Education at the University of Concepción (UdeC), Chile. The results provide preliminary evidence to enable an understanding of the phenomenon of technology-supported academic production.

This study forms part of Chilean National Fund for Scientific and Technological Development (FONDECYT) project number 1110909 entitled "Alfabetización Académica: el hipertexto una herramienta para mejorar los aprendizajes en la formación de profesores" (Academic Literacy: hypertext, a tool for improving learning in teacher training), funded by the Chilean National Commission for Scientific and Technological Research (CONICYT).

Keywords

academic writing, new technologies, digital template, teacher training

La escritura académica con soporte de esquemas digitales en la formación docente

Resumen

El presente trabajo describe la experiencia de elaboración y aplicación piloto de una plantilla o esquema digital de escritura (EDE) en una modalidad b-learning, para optimizar las estrategias de escritura de un ensayo y formalizar el uso del hipertexto en la alfabetización académica. La intervención metodológica se llevó a cabo con una muestra de 32 estudiantes de Educación General Básica de la Universidad de Concepción, y sus resultados proporcionan antecedentes para comprender el fenómeno de la producción académica apoyada por la tecnología.

Este estudio forma parte del proyecto Fondecyt Regular n° 1110909, "Alfabetización Académica: el hipertexto una herramienta para mejorar los aprendizajes en la formación de profesores", financiado por la Comisión Nacional de Investigación Científica y Tecnológica (CONICYT) de Chile.

Palabras clave

escritura académica, nuevas tecnologías, esquema digital y formación de profesores

Background

The aim of current policies in Chile is to achieve higher quality in education. In order to attain that objective, teacher training institutions must, among other measures, reformulate their curricula in order to comply with the new national standards in education. These standards were designed in accordance with regional needs and international advances in academic literacy. In this context, the line of research in which this article is anchored seeks to understand how hypertext use influences the quality of academic literacy in teacher training and, on the basis of that knowledge, to construct, execute and assess a didactic design that optimises the text comprehension and production

processes of a group of Pedagogy students. The study therefore focuses on the dimension of writing, and specifically on the creation of a digital template to produce an essay.

Framing the problem

Students on the Elementary Education bachelor's degree course exhibit an urgent need to make progress on the development of reading and writing competencies in order to meet the requirements of the national graduation profile defined in the "Estándares de formación de profesores" (Teacher training standards) (Sotomayor et al., 2011), a document produced jointly by national universities and the Ministry of Education.

As a complex linguistic process, academic writing requires systematic practice, especially in the teacher training curriculum. The results of the *Inicia* test (Ministerio de Educación de Chile, 2011) applied to Pedagogy graduates from Chilean universities showed that the country's achievements were unsatisfactory in these subjects.

In this scenario, the reading and writing competencies of future teachers are tools that determine two dimensions of teacher training. First, the communicative dimension, which is fundamental to pedagogical interaction, and second, the reflective, critical dimension. Both dimensions will allow teachers to develop the reading and writing competencies of their pupils in any discipline that they eventually teach, and they will only be trained to do that if they themselves have personally and professionally experienced the path of learning those practices.

In the context of academic writing, it is also of interest to consider the temporospatial configurations that new information and communication technologies (ICTs) bring to this competency. The level of interaction that the Internet permits implies a value change with regard to traditionally used sources of information, as well as a change of connective and temporospatial configurations in the relationships and limits of the reader/writer who is the agent of ICT-supported writing. From this perspective, the type of architecture defined by hypertext is used. Hypertext operates with a metalanguage comprising multimodal codes (written, oral and audiovisual), which, connecting a series of discourses, give rise to a complex intertextuality (Colom, 2006).

Aims and objectives

Aims:

To understand, describe and analyse how students of Elementary Education at the University of Concepción (UdeC), Chile, make progress on essay writing using digital writing templates (DWTs) in blended learning mode.

Objectives:

– To diagnose the command of language and ICT use in hypertext writing practices.
– To design, pilot and implement the blended learning platform, based on DWT use.

– To assess DWT implementation in the collaborative production of an essay, in accordance with the key components of language, ICT use and academic knowledge management.

Justification

The need for this research is defined by three key components:

1. Language, focused on essay writing and paying attention to the text superstructure, macrostructure and microstructure.

2. ICT use, using a hypertext tool based on a digital medium – a DWT – to support writing an essay on an education-related topic.

3. Knowledge management, via support from a virtual tutor, an agent providing guidance and feedback on the writing progress made by the participants.

Theoretical framework

a) Hypertext

The concept of 'hypertext', a term coined by Theodor H. Nelson, was originally defined as a "a body of written or pictorial material interconnected in such a complex way that it could not conveniently be presented or represented on paper" (Nelson, 1965, p. 2). The prefix *hyper-* has two etymological meanings: on the one hand, it implies the idea of 'to excess' and, on the other, of 'beyond' (Lamarca, 2007). In the sense of 'to excess', a hypertext document is one that contains a vast amount of text; in the sense of 'beyond', it refers to the idea of interconnected documents, whose structure enables movement from one document to another – or from one text or unit of information to another – by 'jumping' instead of performing a sequential reading (Figueroa et al., 2009). As we can see, the possibility of organising reading and writing in a multisequential way is one of the basic criteria for defining this concept (Lamarca, 2007; Rovira & Codina, 2003; Landow, 1995; Salinas, 1994; Nielsen, 1992; Nelson, 1965).

b) Academic literacy

The notion of 'academic literacy' comprises all the necessary concepts and strategies to participate not only in the discursive culture of academic disciplines, but also in activities to perform the kind of text-related analyses required to learn at university. It therefore encompasses both reading and writing practices specific to higher education, and the cognitive dimension associated with them (Figueroa et al., 2009).

The above assumes that each discipline constitutes a scientific community that deals with ways of reasoning and thinking that are materialised in discourse. The way in which the comprehension and management of this particular use of language is accessed forms part of the academic literacy process within that scientific community (Carlino, 2005).

The strength of this concept resides in the fact that it stresses that ways of reading and writing, and of searching for, acquiring, creating and communicating knowledge are not the same for every knowledge area. In addition, it warns against the tendency to consider literacy as a basic skill that is acquired once and for all, and it questions the idea that learning to produce and interpret written language is a closed matter when students enter higher education. The diversity of topics, text types, purposes,

audiences and implied reflections within contexts where people read and write always present new challenges and demand continuing development of reading and writing practices (Carlino, 2005).

In this respect, reading and writing, which are constant demands in professional life, are not only ways of learning and of structuring thought, but also – and undeniably – of intellectual development and social integration. That is why we have taken it upon ourselves to study the characteristics that the above-mentioned practices acquire in the specific context of working with hypertext (Figueroa et al., 2009).

c) Curricular integration of ICTs

In the specialised literature, there are different approaches to and definitions of 'curricular integration of ICTs'. The recurrent traits that can be found in these definitions are: assembly, combination, use, infusion and influence of technologies within the context of a learning process for a specific purpose and with creative applications.

The International Society for Technology in Education (ISTE, 2002) defines integration as the:

…infusion of technology as a tool to enhance the learning in a content area or multidisciplinary setting… Effective integration of technology is achieved when students are able to select technology tools to help them obtain information in a timely manner, analyse and synthesise the information, and present it professionally.

In short, we ascribe to the idea that "The technology should become an integral part of how the classroom functions – as accessible as all other classroom tools" (http://cnets.iste.org/).

Sánchez et al. (2011), who performed a complete and updated conceptual analysis of ICTs, has suggested a definition that stresses effectiveness in new technology-supported content learning within a specific curricular area. According to that author, curricular integration of ICTs is the process of making them entirely a part of the curriculum, as part of a whole, imbuing them with the educational principles and didactics that make up the apparatus of learning. That basically implies a functional, harmonious use for specific learning purposes in a curricular discipline or domain (p. 1).

Method

The study hypothesis proposed that, by providing virtual multimodal support, DWT use in blended learning mode would allow the students in the third year of the Elementary Education bachelor's degree course at the UdeC to make greater progress on writing an academic text.

The sample comprised 32 students on the above-mentioned course, who took the Text Production subject in the 2011 academic year as part of the third year of teacher training.

Among the subject requirements were the production of an essay in blended learning mode to get a more in-depth knowledge of a particular component of the course content. In this context, the intervention consisted in supporting the essay-writing process by means of a DWT.

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The research was qualitative and followed the phenomenographic model created by Marton and Säljö (1976) for the purpose of a study on quality learning in the field of language. From a learning perspective, phenomenography seeks to reveal how change comes about in learners' awareness when they experience the world around them (Marton & Booth, 1997).

Phenomenography's variation theory allowed aspects common to the interaction processes between the students and the DWTs to be described, thus enabling the essence of the phenomenon being studied to be configured. In addition, it enabled the variant or different aspects of the writing practices within that interaction to be identified. From this perspective, variation in the ways of experiencing phenomena of reality is seen as a natural condition of learning. Therefore, our concern was to establish the emergent categories of processes determined as 'common' in the sample, and then to describe the categories of 'variation' (Figueroa et al., 2009). Regarding the latter, we identified those elements related to quality learning in the essay-writing process with blended learning support by means of a DWT. These constituted basic resources for the articulation of methodological advances.

The data were collected with the following instruments:

– A diagnosis of essay writing without technological support, performed at the beginning of the intervention; and a post-test that assessed the text produced with DWT support. Both documents were assessed using an analytical rubric.

– The blog that contained the DWT, questionnaires and surveys, all of which were used to obtain information about the command of language specific to the discursive genre that had to be produced, ICT use and knowledge management. The same medium was used to administer the questionnaires, which gathered the students' perceptions on completion of the experience. Both the blog and the rubric were validated by experts in the corresponding fields of research.

Description of the didactic implementation of the digital writing template

The research team created a DWT, using a standard essay structure. The application consisted of a digital template containing blank spaces. The students had to complete these with the content required in each part of the text. Between the blank spaces, the following were presented as scaffolding (in different colours): text markers, sentence connectors, fragment functions, etc. Thus, the created template formed a minimal structure that served as scaffolding and a guide for the student in the non-fiction writing process, presenting the composition of a formal written text (Wray & Lewis, 2005, p. 135).

The text markers were inserted in important places within the text: the beginning of paragraphs or sentences so that the reader could visualise them, even before starting to read, and get an idea of the organisation of the text (Cassany, 2002).

The DWT included the review and study of linked sources on a topic, within the context of a discipline included in the Elementary Education bachelor's degree programme.

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The digital template focused on essay writing and, from a discursive perspective, took into account the superstructural parts that are characteristic of this type of text. In accordance with Van Dijk (2005), we understand a superstructure to be the overall template of a text, in this case an essay, and we identified three sections within it: premises, reasoning and conclusion. Regarding the macrostructure and microstructure, these are observed at a propositional level. From a semantic dimension, they clarify the relationships of meaning between adjacent clauses (microstructure) and the associations of meaning of a larger set of clauses (macrostructure).

In addition, a blog was created as a digital support for the DWT. Blogs are tools for expression, communication and socialisation, offering publication services and interaction opportunities for a hypertext didactic design. The blog functioned as an architectural element for the publication of content. The page design was easy to navigate and allowed the instructions for independent and collaborative writing tasks to be delivered. The tasks were undertaken in the Google Docs digital text-processing tool, which allowed for feedback between the work team, formed by the students, and the virtual lecturer/tutor on their interaction with the content media (online digital documents, forms and presentations).

The course was implemented in blended learning mode, and both face-to-face sessions and virtual sessions were held. In the face-to-face sessions, the students were provided with basic notions of the writing process, and in the virtual session, they independently produced an essay using the DWT. Throughout this process, the subject lecturer and virtual tutor monitored the students' productions and provided synchronous and asynchronous feedback.

The technological tools used enabled data for the three key components of the study to be gathered: language, ICT use and knowledge management. Then these were qualitatively processed.

Figure 1 below shows the DWT for the production of an essay, containing the indications to support the writing (in different colours).
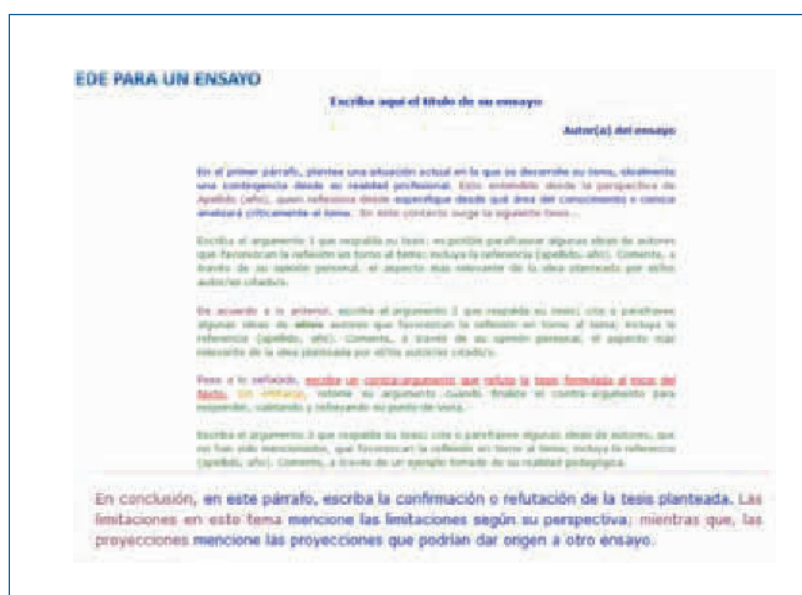

Figure 1: Digital writing template (DWT).

Data analysis

The data recorded on the blogging platform allowed the essays written with the DWT and those written without technological support to be compared. The comparison was organised into three categories or levels of performance. Each one described the development involved, expressed as a score that was translated into a grade.

Figure 2 shows these descriptions, obtained from an analytical rubric that was applied by the lecturer/tutor and the peer co-assessors. This assessment instrument focused on the linguistic and discursive dimensions of the genre, based on the text superstructure, macrostructure and microstructure categories.

Using the above-mentioned categories, the results of the comparison between the initial and final versions showed that, in the diagnostic stage, there were 17 beginner-level students, 10 intermediate-level students and 5 advanced-level students. Then, after implementing the production experience, the results showed that, in the post-test (final essay) stage, most of the subjects had shifted from the beginner and intermediate-level categories to the advanced-level category. Consequently, there were 3 beginner-level students, 3 intermediate-level students and 26 advanced-level students.

The writing progress observed as a result of using the digital template was identified: a) in the command of the text superstructure, where the template had allowed the students to get an overall grasp of the meaning of the document, coherently articulating the premises, the reasoning (arguments and counterarguments) and the conclusion; b) in the command of the macrostructure, where the DWT – as a visual template – had contributed to the organisation of paragraphs, to consistency and to cohesion, facilitating the progression of ideas in the text; c) in the microstructure, the template's text markers helped to establish relationships of meaning at a local level. The suggestions for specific connectors enhanced the expressive possibilities of the discourse.

Figure 2. Descriptors of performance levels in the written production of an academic essay.

Instrument	Performance levels		
	Advanced	*Intermediate*	*Beginner*
Post-test Essay written with the DWT.	Presents the superstructure of the argumentative text: premises, reasoning (arguments and counterarguments) and conclusion. Each part is identified by using text markers (initiators, connectors and modifiers) specific to argumentative discourse, to introduce, to indicate the function of paragraphs and to establish connections between statements and paragraphs, which mark the thematic progression.	There is an overall organisation (superstructure) containing the main parts of the essay: premises, reasoning and conclusion. Parts of this structure are distinguished by some connectors that relate the statements within a paragraph. However, cohesion between the paragraphs is achieved by initiators in the first argument and a function marker in the conclusion.	Presents an overall structure: premises, reasoning and conclusion. These parts are identified in particular by full stops, which divide up large paragraphs. An initiator is used in the premises, but the text lacks markers indicating the function of the paragraph in the discourse. Regarding cohesion within paragraphs, the use of connectors inconsistent with the content that they introduce and develop in the text was found.

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Other aspects strengthened by the technology were the recording and monitoring of the writing process by using the history tool available on the blogging platform. On the one hand, this allowed the authors – the students – to access successive versions of the essays written with the DWT; it also allowed them to rearrange the path of written production, from tasks associated with the planning stages to those associated with the final text. On the other, the tutor's feedback and suggestions were automatically saved in the history for each progressive stage and version of the text. Access to tracked changes, supported by online resources, fostered the authors' individual and collective metacognitive reflection. It was therefore possible to systematically and entirely assess the most complex tasks and the scaffolding required in the didactic design to help the students overcome specific difficulties in certain parts of the text.

This information was complemented with the perceptions of the participants in the process: the students and the virtual lecturer/tutor. These perceptions were gathered by means of questionnaires that had been designed and administered online, using the Google Docs form tool (cloud), which allowed the answers to be recorded, organised into tables and presented in graph form. The aim of the questions posed in this instrument was to collect data on: a) ICT use, as a prerequisite for digital literacy, and specifically the use of Google Docs to produce an essay using the DWT; b) the command of the discursive genre; c) the blended learning mode of the didactic design: face-to-face sessions and virtual sessions for essay production; d) synchronous and asynchronous feedback for each progressive stage of the production process.

Regarding ICT use, before the intervention, only 4 students from the sample (32) said that they knew about Google Docs and the possibility of individually or collectively writing online, though they had only used it once. However, a significant number (20) were users of blogging platforms, and had even created their own blogs for recreational purposes. The remaining 7 subjects neither knew about nor used the mentioned technology. These data helped us create an online and face-to-face tutorial on how to use the above-mentioned application and platform, which was included in the didactic design.

Regard the command of the discursive genre, most of the subjects from the sample (26) felt that the most significant progress they had made between the diagnostic stage and the post-test stage was in the use of the technology and the DWT because it presented an overall structure organised into paragraphs, and that each one contained indications about how to complete the content and what connectors to use to enable them to sort their ideas properly. They acknowledged that the template could not have been completed if they had not had a grasp of the topic. This idea was backed up by the virtual lecturer/tutor, who highlighted the fact that the DWT had provided a general structure for argumentative discourse, shifting the focus of attention of essay production away from the 'how' – the form – towards the 'what' – the content – and, in doing so, had lent a helping hand to the students who had only just started to grapple with academic writing.

Regarding the blended learning mode of the didactic design, 24 subjects pointed out firstly that its organisation into face-to-face sessions gave them the opportunity to receive more detailed explanations about essay production and to share the collective revisions of their peers' writing progress. Secondly, the students considered that the virtual work had been sufficiently flexible because, even though there had been a deadline for completing each task/progressive production

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stage, they had had the chance to develop and continue working on them at different times of the day and week. Timely feedback was also received digitally via the tool for comments recorded in the history, which allowed them to return to the suggestions for improving the text delivered by the tutor. On the issue of the mode used, the tutor highlighted the learners' acquired awareness of the writing process and its reiterative nature, which demanded not only concentration and perseverance, but also the capacity to take the comments on board and improve their text (TV/6).

Regarding feedback (knowledge management), 20 students expressed their agreement with the suggestions and comments received for each progressive stage, which had compelled them to improve the essay between one version and the next. A smaller group (5 subjects from the sample) expressed their preference for synchronous feedback from the virtual tutor because it favoured immediate correction while writing was taking place. However, 15 students scored asynchronous revision more highly. Among the reasons given were the need to start writing in an independent, uninterrupted manner, and only then to receive comments in order to avoid confusion. The tutor highlighted the potential of the blogging platform and the DWT for providing both types of feedback (synchronous and asynchronous), and said that the feedback's usefulness in guiding the writing process was dependent on the students taking it on board to improve their texts (TV/8).

Results

The results obtained from the ICT-supported re-writing were:

1. The DWT encouraged the students to stop using the information cut-and-paste method. Instead of that practice, the subjects made progress on the production of an academic text by adapting the modelled text structure to include specific thematic content.
2. The students reformulated their writing strategies, which were systematised through interactions with digital corrections. The virtual space, characterised by connectivity and speed, allowed the activities of writing, feedback, assessment by the lecturer and self-assessment to become a path towards metacognitive reflection on the students' writing practices.
3. The use of the digital template to guide hypertext writing was the most important didactic advance according to the group's perceptions. At the pre-test stage, only 4 out of the 32 students stated that they knew about and had used a digital template in their academic works. At the post-test stage, however, all of the research subjects had used the DWT to produce texts.
4. At the writing stage, the students were organised into groups, and team tasks also gave rise to significant progress from the perspective of collaborative learning supported by an online word processor, such as feedback and peer correction via the word processor's comments tool.
5. The multimodality of codes boosted by the technology enabled greater reinforcement of the writing practice. Most of the students used the colour coding of the DWT to identify text elements of the superstructure, macrostructure and microstructure. In addition, the use of technological icons in the template helped to provide support for the verbal code.

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6. From a pragmatic dimension, motivation for writing the text in question was increased by the acknowledgment of its functionality. The students became aware of the fact that the competency being developed was extrapolable to other writing works for other curricular subjects.

Conclusions

a) For the students in the sample, DWT use in a blended learning didactic design for academic literacy improved writing production competencies, taking into account the integration of the three key components: language, ICT use and academic knowledge management.

b) ICT use requires a didactic design that strengthens knowledge management on the basis of a specific learning need, articulated with available resources and the lecturer's technology-user profile to support the implementation of the curriculum.

c) The command of 2.0 ICTs is not necessarily apparent among digital natives. Virtual platforms must therefore consider this aspect, and must be simple and easy to use for those just being initiated into digital literacy for academic purposes.

d) The blended learning mode is an effective option for the architecture of collaborative learning in a teacher training context. Lecturers have the opportunity to provide experiences using tools that make the process more flexible and give the students more independence and a chance to participate, as they are the ones who will need to use them in their professional lives. In this respect, blog design and administration options provide a significant learning environment.

e) Besides qualitative analysis, the phenomenographic model allows pedagogical reflection to be investigated from the perspective of 'variation', which in turn constitutes a learning theory.

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About the Authors

Beatriz Figueroa Sandoval
bfiguero@udec.cl
Adjunct Lecturer, Department of Curriculum and Instruction, Faculty of Education,
University of Concepción, Chile

She is a qualified teacher of Spanish and holds a doctorate in Education. She undertakes her teaching and research work in the Department of Curriculum and Instruction, Faculty of Education, University of Concepción (UdeC), Chile. Her teaching and main line of research are in the field of Language and Literature Didactics, in the initial and continuing education of teachers on bachelor's degree courses in Elementary Education and Pedagogy in Spanish. Since 2007, her studies have focused specifically on the construction of reading and writing practices supported by hypertext tools, in the academic context of teacher training. Her research has been funded by the Government of Chile through bodies such as the Research and Development in Education Fund (FONIDE) and the National Fund for Scientific and Technological Development (FONDECYT). She is currently a member of the Education Study Group, which assesses and selects research projects to be funded by FONDECYT.

Mariana Aillon Neumann
maillon@udec.cl
Collaborating Lecturer, Department of Curriculum and Instruction,
Faculty of Education, University of Concepción, Chile

She is a qualified teacher of Spanish and holds a master's degree in Hispanic Literature. She is currently a doctoral student in Linguistics at the University of Concepción (UdeC), Chile, as the holder of a grant from the National Commission for Scientific and Technological Research (CONICYT) of the Government of Chile. She also works as a lecturer in the Department of Curriculum and Instruction of the Faculty of Education at UdeC. Her experience includes teaching in the field of Language, in the initial and continuing education of teachers on Pedagogy bachelor's degree courses for pre-school, elementary and middle levels. She has trained for eight years in the field of Language and Literature Didactics with Dr Beatriz Figueroa and, since 2007, has been a co-investigator on her team working on hypertext-supported academic literacy.

Andrés Fuentealba Urra
ffuentealba@udec.cl
Master's Degree Student in Applied Linguistics, Faculty of Humanities and Arts,
Universidad de Concepción, Chile

He is a qualified teacher of Spanish and holds a master's degree in Knowledge Management. He collaborates on research into academic literacy through his master's degree dissertation supervised by Dr Figueroa. He takes part in the design of educational platforms applied to competency development in the field of language for didactic purposes.

Universidad de Concepción
Barrio Universitario - Facultad de Educación
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