

Generational change: an influential factor in the context of curricular innovation. A qualitative study

Abstract

The objective of this study is to explore teachers' perceptions of the didactic changes related to curricular innovation in theoretical Nursing modules of Obstetrics and Child Care. We used a qualitative methodological design with a phenomenological approach. The study group consisted of 20 teachers from Nursing. The instruments used to collect the information were in-depth interviews, participant observation and documentary analysis.

Our results indicate that generational change in students is an influential factor for teaching staff to try innovative didactics. On the other hand, teacher training incorporates student-centered methodologies, as required in curricular innovation. Regarding facilitating factors, the study group recognizes that the teacher, due to their motivation and disposition, is the main protagonist in the implementation of changes in teaching strategies, during the curricular innovation process.

Among the impeding factors are: lack of resources; academic load; and inadequate infrastructure. We conclude that there is constant concern within the academic community to implement methodological innovations in response to student generational change, nurturing competences such as teamwork and critical thinking.

A novelty of this study is that generational change influences the way students learn and communicate, as well as staff decision-making when it comes to didactic strategies in the teaching-learning process. As a contribution, the motivation and dedication of the teaching staff, translated into their continuous improvement and updates in education-related topics, emerges as a key factor in the generation and implementation of changes that are coherent with curricular innovation.

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Rita Avendaño Gutiérrez^{1,2}

¹Department for Women's and Neo-Natal Health, Faculty of Medicine, Universidad de Chile, Chile

²School of Obstetrics and Neonatology, Faculty of Health and Odontology, Universidad Diego Portales, Chile

Correspondence: Prof. Rita Avendaño Gutiérrez, School of Obstetrics and Neonatology, Faculty of Health and Odontology, Universidad Diego Portales, Avenida Manuel Rodríguez Sur 253, Santiago, Chile, Tel +56993782191, Email rita.avndano@udp.cl

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Introduction

The University of Chile's Faculty of Medicine began a process of undergraduate organization in 2006, aiming at coherence, integration and flexibility in academia. This process was integral and coordinated to allow the faculty's main stakeholders take part in decision-making.¹

In 2009, the School of Obstetrics began curricular innovation with a competency-based training plan, adopting a transferable credit system, both in general and professional training. Likewise, academic loads, expected achievements levels for the competencies, subcompetencies, learning units and evaluation processes were determined.

To measure compliance with educational quality criteria, we collected teacher and student feedback during the curricular innovation process. This study investigates teachers' perceptions regarding changes in teaching strategies, focusing on the theoretical courses in Obstetrics and Child Care at the University of Chile, to triangulate this information through research methodologies such as participant observation and documentary analysis.

Curricular innovation

Curricular innovation is defined as an option to improve the quality of educational training that prioritizes skills such as teamwork and reflection, among others, considering the needs of society, population development and academic work.²

All these concepts are addressed by the European Higher Education Area (EHEA), which not only promotes changes in organization and content, but also methodologies for planning

classes.^{3,4} Thus, educational innovation is a process involving socio-political and cultural factors which change the proposed approaches and educational models.⁵

Competency-based curriculum

According to Yarza,⁶ "the approach of a competency-based curriculum is an alternative to the traditional and academic curriculum, since it goes from the logic of 'knowledge' to the logic of 'know-how'".

Competency is defined as the skills and abilities students must acquire during their professional training. It is the result of a qualification process; 'being able to', 'be qualified for'.^{7,8}

The competency-based curriculum should reflect deeply on the meaning of current education and develop in an evolutionary way within the active and autonomous teaching-learning process, mainly in the hands of the student.⁹⁻¹¹

Student-based curriculum

Schiro¹² discusses an 'ideology' centered on the student, based on the needs and interests of the individual student, who is able to control their own growth.

The curriculum is understood "as contexts in which subjects develop knowledge by interacting with other students, teachers, ideas and objects". The educator plays a fundamental role, stimulating the growth of students to choose their own definitions during the teaching-learning process.¹²

According to the EU's Lifelong Learning Program, student-centered learning promotes learning in communication with teachers and students with innovative methods.¹³

Didactic strategies

Didactics is the “ability to select and use different teaching methodologies based on the proposed learning achievements” (Asún *et al.*, 2013). According to Biggs,¹⁴ learning is constructed by the processes that students develop according to the types of activity they perform in each academic context. The teacher decides which methodology to use according to the competencies that the student must acquire.¹⁵ Among the modalities focused on developing competencies are: theoretical classes; seminars/workshops; practical classes; tutorials; problem-based learning; group work and study; individual work and study.^{16–18}

It should be noted that expository classes correspond to a passive methodology, but may however be transformed into an active methodology, by allowing students to interact with the teacher and participate in the construction and reconstruction of meanings. In addition, autonomous work should be encouraged. Therefore, all training programs must include methods requiring more active work and personal involvement by the student.¹⁵ The simulation, for example, develops and promotes the student's abilities to perform procedures on real patients, improving learning (Brigden, 2008).

Basing this approach, simulation has multiple advantages, since it develops learning based on one's own experience, includes immediate feedback, and allows errors during clinical cases without any risk (Míguez, 2011). However, the simulation is not yet fully incorporated into educational programs.

Other authors suggest that lectures are still an excellent method for providing organized and accessible information to students, combined with other methods.¹⁹

A recent study into student perceptions highlighted the importance of clinical learning; most students learned more about basic nursing care during their practical than during theoretical education.²⁰

In short, and arguing the above, the teacher is responsible for selecting the teaching strategies in their courses, to ensure students achieve the necessary skills and abilities.

Influencing factors in didactic change

In order to identify the factors affecting methodological change, teacher perceptions are extremely useful.

Generational change in students is an influential factor in the teaching-learning process, since info-communication technologies revolutionize communication and learning.^{21,22} Each generation has its own unique stories, characteristics, differences and tensions.²³

This is also reflected in the performance of young professionals, notably “providing environments which support and nurture young doctors, foster collaborative work and a flexible schedule”.²⁴

Likewise, Rosselot (2004) states that education is open to modifications, where economic, social and political changes have been intervening factors.

The teacher plays a predominant role as guide and facilitator of this process; in fact, teachers competence is the most significant influencing factor in students' learning processes in a clinical setting.²⁵

The teacher must adapt to innovations by means of training, and acquire the tools that respond to students' ever-changing needs. They must ensure students develop critical thinking, involving them in research, teamwork, and interdisciplinary tasks, without underestimating the individualization of learning.²⁶

Darling-Hammond & Dransford²⁷ designed a general framework that considers factors such as subject knowledge and curricular, learning and personal objectives, in their social context (Figure 1).

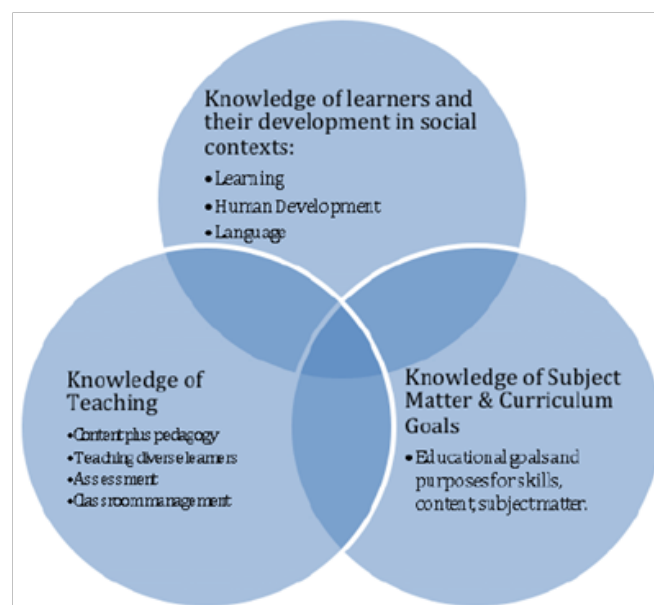


Figure 1 Darling-Hammond and Dransford (2005).²⁷

As another fundamental factor in methodological change, Díaz discussed the participation level of different stakeholders; “the choice of innovations in the curriculum comes from content experts, so in many cases a unidirectional implementation logic is maintained”.²⁸ This has been a crucial point in the resistance to change, as communication between tiers of an institution must be aligned, determining which didactic strategies – based on scientific evidence – will best teach abilities, skills and competences.²⁹

As De Miguel points out,¹⁶ the teacher must know which variables affect learning and resistance to curricular change to choose the methodology, favoring the integration of innovation. Therefore, strategic planning is extremely important to implement new methodologies, and teachers must continually be trained to respond to students' needs.³⁰

The aim of methodological renewal is to plan all teaching-learning processes,¹⁶ using ICT in a synchronous or asynchronous way with individual learning.

There are multiple factors that affect didactic change processes, therefore “any strategy oriented toward innovation and the quality of university education should include facilitating actions, considering changes both in institutions and in the main stakeholders”.^{31,32} Another essential point is training and support by qualified practitioners, both for teachers and students; “Teachers and students need to be supported so they can successfully face the challenges of this new context, and address them in a meaningful way”.³³

Perception

The present study considers Robbins' vision of perception as "a process by which individuals organize and interpret their sensory impressions in order to give meaning to their environment",³⁴ supplemented by Lambin: "[...] process by which an individual selects and interprets the information to which he is exposed".³⁵

According to Myers³⁶ perceptions are "evaluative tendencies, based on the experience, the sensations, the ideas and the prejudices that guide behavior, thoughts and emotions".

Glass³⁷ stated that perceptions are influenced by internal and external factors; a teacher's behavior has a significant perception component, meaning pedagogical practice is directly related to their perceptions of the world.

Methods

The present work is based on constructivist theory, where each individual's knowledge is influenced by social, cultural, and other factors,³⁸ within the phenomenological hermeneutic paradigm so as to "describe and understand what individuals have in common with each other according to their experiences with a certain phenomenon".³⁹

We conducted a qualitative study into "the definition of the object of study, understanding this reality through methods and techniques that produce narrative data",⁴⁰ with the aim of describing the changes in methodological strategies during curricular innovation, their influencing factors, facilitating factors and impeding factors through teacher perceptions, and triangulate this information through participant observation and documentary analysis.

Context

According to the new constructivist paradigm, the teacher has a facilitating role, choosing the best strategies for the competency-based approach of the curriculum and the new demands it faces, such as ICT,⁴¹ one of the most commonly used tools which characterizes generational change.

In the current literature there is no evidence about the factors that influence change in didactic practices, prompting the following research questions.

Premises

Generational change in students is one of the influencing factors for didactic change. The didactic strategies used during curricular innovation are more active and participatory than previous ones. Among the facilitating factors for the generation of change in teaching is teacher training.

Sampling types

We used purposive sampling, since the profiles correspond to different people with certain characteristics, which can influence the phenomenon studied and are representative to answer the research questions. The sampling strategy is mixed, characterized by the flexibility and triangulation of the informants.

Qualitative research techniques

For data collection, we used in-depth interviews, participant observation and documentary analysis.

The in-depth interviews were conducted with the objective that academics who have been in charge of modules in Nursing (PEC) and professors participating in these theoretical courses, express their perception regarding the changes that have been generated and implemented in didactic strategies, as well as their influencing factors, in order to understand their thoughts on the study problem.⁴⁰

We performed participant observation in the ten nursing courses specified in the inclusion criteria, which provided information on social aspects that cannot be interviewed, as well as attitudes and behaviors without modifying them. These data were collected in a field journal.

Participant observation can be defined as the process researchers employ to learn by observing and participating in activities. Participant observation is also defined as "the process of learning through exposure and getting involved in the day-to-day or routine activities of the participants in the researcher's scenario".⁴²

Documentary analysis consisted of the course programs from 2007 to 2016, within the context of the teaching strategies used during that period.

Study group

The Nursing teachers in the School of Obstetrics (Faculty of Medicine, University of Chile) who participated in theoretical courses (Fundamentals of Nursing I and II, Surgical Medical Nursing) consisted of 25 teachers (24 midwives and one nurse-midwife), 20 of whom belonged to the study group. The sample is described as follows:

Study sample characteristics		N° of professors
Contract hours	44 hrs	16
	22 hrs	4
Academic level	Associate Professor	1
	Assistant Professor	12
	Instructing Professor	5
	Professional Team	3
	Midwifery	19
	Midwifery Nurse	1
Professional training	BA	19
	MA	6
	MA in progress	5
	Diploma	20
Master's/ teacher training	Teacher Training	20
	Master's in Education	12
Academic management position	Professor in Charge of Module	13
	Participating Professor	7
Teaching experience	5 years +	14
	1-4 years	6

Considering the teachers in the School of Obstetrics, the following selection criteria were determined:

- a. Academics from the School of Obstetrics in the University of Chile with teaching experience (more than 5 years) and who have served as professors in charge of a module.
- b. Academics from the School of Obstetrics in the University of Chile with little teaching experience (less than five years) and who have served as professors participating in theoretical Nursing modules.

Analysis

The first stage of the analysis consisted in reducing the information to facilitate obtaining the results, as well as providing an analytical structure to relate the methodological strategies with influencing factors, strategies used before and after curricular innovation, facilitatory and impeding factors, teacher proposals in relation to

improving facilities and using methodological strategies.

This analysis included:

- i. Design of a category system.
- ii. Literal transcription of the recordings.
- iii. Recognition of text segments by category.
- iv. Structural analysis of content.
- v. Content analysis of documents.

Below is the Table 1 with the system of dimensions and categories that we used for result analysis. For coherence, the study's specific objectives are presented in the first column.

Table 1 Dimensions and categories

Objective	Dimension	Category
Analyze teacher perceptions about the influencing factors in the generation of changes in teaching strategies.	Influencing factors	Generational change. Info-communication technologies. Student learning styles. Teacher training.
Analyze teacher perceptions about the didactic strategies used before and after curricular innovation.	Changes in teaching strategies	Before the innovation After the innovation
Analyze the facilitatory and impeding factors in the implementation of changes in teaching strategies.	Implementation Factors	Facilitating factors Impeding factors

Results

The results from the in-depth interviews and participant observations are presented below ([Annex B](#)).

These interviews were divided into two groups of teachers in the School of Obstetrics, which are detailed below:

- A. Teachers in charge of a module (PEC) and with teaching experience (over 5 years).
- B. Teachers participating a module (PP) and with little teaching experience (less than 5 years).

Dimension: influential factors

This dimension includes generational change, info communication technologies, student learning and teacher education.

The results in relation to teacher perceptions of the factors that influence changes in methodological strategies from both interviewee groups are very similar. Among the factors described by them are: generational change, the use of infocommunication technologies, student learning styles and teacher training.

Generational change involves the role changes of the two stakeholders in the teaching-learning process, creating a more horizontal relationship focused on the student, with the use of technologies to support learning. The teachers continually train in order to respond to students' demands.

Participant observation confirmed the importance of the factors raised by teachers, and that teachers urge students to generate their own knowledge, guiding this process by means of synchronous and asynchronous communication.

We also confirmed that teachers are continually trained in different areas of teaching, which translates to increased knowledge of teaching strategies, as per the requirements of curricular innovation.

Teachers allow the students in their workshops to use technology, and most of them have a laptop, tablet or cell phone, which support the learning process.

Teachers use strategies that motivate students, such as creating entertaining videos to demonstrate a technique they must learn, thus encouraging collaborative work.

Teachers also diligently aim to implement simulation workshops in a real context, which requires prior planning.

The professors in charge of modules coordinate work with student assistants in order to cover the need for teachers and execute the workshops in small groups.

Dimension: changes in teaching strategies

In this analysis, there were similarities between the two interviewee groups; before the innovation they stated that methodologies focused on objectives, with the use of demonstrative workshops in large groups, with a predominance of expository classes.

After curricular innovation, participatory methodologies are used such as: simulation workshops, modified clinical trials, work in small groups, self-management of study time and clinical simulations. Teachers also maintain that the latter must continue to be used in order to respond to learning needs.

In the participant observation, unlike the teacher perceptions from the interviews, participative classes predominance, generating spaces for students to solve their doubts or reinforce key concepts.

Teachers with less classroom experience tend to be younger and use innovative technologies such as prezi or audiovisual material.

The simulation workshops are planned in advance with the module teaching staff, using different scenarios and inputs according to the workshop objectives, with the aim of favoring the learning process.

Some teachers still use demonstrative techniques in their workshops, in a context that is not so close to reality.

The small groups had approximately 14 students each, due to the fact that a certain number of teachers are required to carry out a programmed activity as a teaching methodology.

Dimension: implementation factors

The results from the two interviewee groups coincide with facilitating factors such as teachers' motivation and disposition, the teacher playing a key role in the implementation of new methodological strategies. Likewise, they emphasize training teachers in simulations and support for the rest of the teaching team, the school's management strategies to maximize resources, implement new methodologies and socialize the curricular innovation process between peers.

Participant observation corroborated results from the interviews, recognizing the desire to comply with the strategies in the course program, as well as the creativity to implement learning scenarios and involve the rest of the academic body. Similarly, teachers plan feedback sessions with students in order to improve their learning.

Regarding the factors that hinder changes in the methodological strategies, both groups agree on the lack of economic, human and infrastructural resources. Although at times there is a lack of supplies for the workshops, both teachers and students are able to adapt, completing all procedures as planned.

It was also clear that a great deal of planning is required to implement the simulation, since much support, motivation and dedication is needed from the teachers.

The teachers in charge of modules and classroom experience had a different perception to the other group in the following factors: political decisions; program credit; the resistance to methodological change related to on-going teacher training; planning; and the time needed to implement new methodological strategies.

Participant observation found that experience, being in charge of a module and being able to perform the activities as planned, generate another type of criticism from the teachers in charge of modules with more classroom experience, since activity planning must be guided by the time credits assigned to them, and require mastery of educational concepts achieved through experience.

Discussion

The results from teacher perceptions suggest that the influential factors are: generational change in students, which demands new

forms of communication between the teacher and the student, making the teaching-learning process horizontal; ICT, because students use more communication mechanisms every day; the students learning techniques, developing autonomy; teacher training, as teachers must adopt new teaching strategies to respond to new demands and thus implement innovations in their teaching strategies.

These results are consistent with the statement by Meso and colleagues that "social networks must play an important role in the configuration of new educational spaces, since their use entails the acquisition of some of the competencies set by the EHEA";⁴³ by Soto et al.,²¹ also in relation to ICT and its advantages in education; and by Bova & Phelan²³ in relation to generational changes, their traditions and inherent characteristics.

In relation to the changes made in teaching strategies, classes remain a fundamental didactic strategy before and during curricular innovation in the School of Obstetrics, complementing several didactic strategies used in the three Nursing modules. These include workshops, clinical cases, debates, problem-based learning, and since 2014, simulations have been implemented in the Fundamentals of Nursing I.

These results are related to those cited by Zabalza, who claims that "The lecture is an excellent method to provide organized and affordable information to our students".¹⁹

In relation to teacher perceptions of the strategies used before the innovation, the methodologies were focused on learning objectives and content, with large groups of students in demonstrative workshops and expository classes.

Following curricular innovation, participative methodologies are used, which focus on the student. The teacher plays the role of a guide or facilitator in the teaching-learning process, as per the University of Chile's new educational model (Undergraduate Department, 2015).

On the other hand, non-contact hours are declared as a didactic strategy, although the pedagogical activities are not specified. The importance of this declaration can be related to the Faculty of Medicine's educational model, which suggests a minimum number of study hours or credits to meet the learning objectives as part of curricular innovation (Undergraduate Department, 2015).

Participant observation and analysis of the course programs indicated that expository classes are still a didactic strategy, allowing the teacher to deliver content to a large number of students with feedback and pauses to clarify concepts.

However, De Miguel¹⁵ stated that methods requiring more active and personal involvement from the student should be included in any training program.

Castillo declared that during curricular innovation "teachers should place more emphasis on developing soft skills, which include communication skills, teamwork, professionalism, inter alia".² These results also relate to McKeachie,⁴¹ who indicated that the teacher ought to be able to choose the best strategies according to the curriculum's competency-based approach. Additionally, De Miguel says that "for this to be possible, one of the first issues to review is teacher perceptions of the mechanisms and strategies that determine student learning".¹⁶

In this aspect it is important to emphasize that the teacher plans and executes their teaching strategies in relation to the learning objectives, without explicitly declaring them in the interviews. Nevertheless, this

demonstrates the systematic reflection and concern from the teaching staff that the student be the strategist of his/her own learning, and the teacher be the facilitator of this process.

This aspect of the study can be related to Darling-Hammond's proposal that teachers should be trained for the teaching-learning process, with knowledge of how students learn and develop in different social contexts, considering test results in order to design and manage a productive classroom.²⁷

Regarding the impeding factors, teacher perceptions differ according to teaching experience. More experienced teachers list the following difficulties: the crediting of theoretical modules in Nursing; political decisions; and resistance to methodological change at the beginning of curricular innovation, which denotes having experienced and participated in the curricular innovation process, unlike the teachers with less experience who did not participate at the beginning of this process, only when it was already implemented.

Teaching expertise, experience and the socialization of the different stages of curricular innovation play a more important role in the perception of teachers with more experience who are in charge of a module than those with less experience who participate in a module.

This relates to Diaz: "curricular innovations are chosen by content experts, i.e. without significant participation from teachers and students; unilateral"^{28, 44–57}

Conclusion

The relevance of this study lies in the fact that there is evidence of the constant need for curricular innovation within the academic community due to social, political and technological changes, in order to respond to generational change in students. This translates to using teaching strategies to guide and facilitate new learning methods, using tools such as infocommunication technologies for collaborative work and to stimulate critical and reflective thinking in future professionals.

This educational innovation, intertwined with generational change, enables students to construct their own meanings in learning and develop the competencies required in professional midwifery training as guided by a facilitator of this process (the teacher).

There is also a recognized change in the teacher-student relationship, which evolves from a vertical to a horizontal relationship, with the teacher acting as an expert who guides and facilitates the teaching-learning process within a constructivist model.

Another influential factor in this process of curricular innovation is the time teachers have to plan their didactic methodologies, which can be a deciding factor.

We observed various didactic methodologies in the Nursing modules, the most predominant being participative classes with questions and feedback between teacher and students.

As impeding factors in the implementation of didactic change, human, economic and infrastructural resources are declared in this research.

As a novelty, it is recognized that generational change influences the way students communicate and learn, using tools such as information technology, which teachers also use to select the best teaching strategies within the teaching-learning process as a response to this change.

As a contribution, the motivation and dedication of the teaching staff, which translates to continual improvement and keeping up to date in education and related topics, emerges as a key contributing factor in the generation and implementation of didactic changes during curricular innovation (Figure 2).

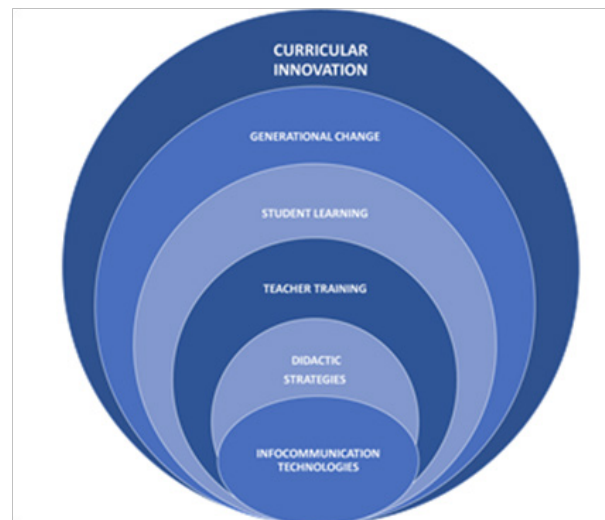


Figure 2 Rita Avendaño, 2019.

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Conflicts of interest

The authors declare there are no conflicts of interest.

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