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Challenges and Opportunities for Innovative Curriculum: Strategies for Implementation of Curricular Modernization in the Teaching of Architecture

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Abstract: The following article is the result of a research that reflects on the process of curricular innovation of the undergraduate career of architecture at the University of Chile. The article discusses the need to build strategies for proper implementation of the new curriculum in accordance to the orientation and emphasis of innovation, taking on the challenge of training professionals who can interact with the complexities of contemporary society. Specifically it suggests the need to link curriculum management, formative vision and disciplinary field, allowing adequate coordination between the different disciplinary lines of the career, namely, between theory and practice. A transformation that occurs because of the incorporation of the teaching model based on competency. Thus, it is expected that the future professional can solve problems and interact critically within his field of action.

Keywords: Curricular Innovation, Architecture Education, Curriculum Design, Curriculum Implementation, Competency

Curricular Innovation at the University of Chile

The University of Chile is one of the most respected educational institutions in the country. Its lengthy trajectory accounts for its leadership as an educational space linked with the needs of society and the protection of community interests. Although it had a strong tradition built over many years, in the late 1990s, in response to shifting cultural scenarios and consolidation of the knowledge and information society, the University undertook a process of reflecting upon its organization and its objectives for undergraduate programs. These reflections, prompted by the various entities that shape the university community, took on the nature of reforms during 2006-2007, when the mandate to launch *Undergraduate Modernization*[1] became ensconced, under the *Institutional Development Plan* (IDP) guidelines—the University's "road map."

The context we are facing today is markedly different from that which existed when the University of Chile was consolidated as the country's intellectual reference. In this sense, these undergraduate reforms may be understood as the University's response to the challenges and opportunities we face in educational and training endeavors in today's world. A point in time, defined by the consolidation and rapid growth of the knowledge society and the constant flow of information[2] that attend our lives and have disrupted the traditional teaching-learning process, as

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[1] "Undergraduate modernization is a work in progress. Practically all Faculties and Institutes at the University of Chile are focused on examining and reconsidering their professional education and degree programs. In all processes, although with varying degrees of success, the following have been maintained: the logic and dynamics of a model that demands and requires that all the different actors participate; the transparency of their actions; ongoing dialog with standard-setters within the country, the profession, the discipline, and the educational realm; critique of and suspicion toward the constructs themselves, as a stance of consistently maintaining coherence with the University's educational proposals and responsbility to the country" (Undergraduate Department, University of Chile, 2008, p. 5).

[2] Major issues fully reflected upon and discussed by Manuel Castells (1997), in the text entitled *La era de la información. Economía, sociedad y cultura. Vol. 1. La sociedad red.*

COMMON GROUND

we once knew it.[3] At the University of Chile—the case in point—the conceptualizing, drafting, and structuring of this response was rooted in the challenges of the mission that guided its founding and destiny: an enduring commitment to the country's major concerns, in its role as national and public university. To be specific, the University of Chile began to question the teaching models traditionally adopted by institutions of higher education: the encyclopedic model, on the one hand, which was widely consolidated beginning from the nineteenth century and basically spread from Europe to the rest of the world, and, on the other hand, the trend toward an education that is exclusively *professional*, which is dictated by the demands of the educational "market"[4] and its call for "labor efficiency." Given these two options, then, which more or less sum up today's panorama of higher education, the University chose to place its emphasis on educating reflective individuals, who not only absorb the knowledge their professors have delivered but also—and most importantly—are capable of making meaningful connections with the setting and/or context in which, as social actors, they play a dynamic role, precisely because they can mobilize the knowledge they acquired during their education.

This orientation understands that curriculum modernization and innovation processes are not a neutral transformation.[5] Quite the contrary: they are processes that revolve around an educational vision—a particular role for university-level instruction in the sociocultural milieu in which it takes place. In this particular case, there is a commitment to constructing a new paradigm under which education may be transformed from teaching-centered knowledge delivery to learning-oriented instruction.[6] An approach that transfers a key role to students, who must absorb the information they have received and, through reflection, transform it to material that is meaningful in their field of endeavor. An updating that translates, specifically, to revision of the educational structures for all undergraduate degree programs at the University through redesign of the curriculum and the exit profiles.[7]

In this scenario, and as the core of its pedagogical and educational structure, the University has adopted the concept of *competencies*—understood as the knowledge of how to act in an appropriate manner for the problems being confronted, mobilizing resources to address these problems effectively. An outlook that understands problems as a focal point related to a complex and systemic reality so that solutions would be proposed and decisions would be made responsibly.[8] Thus, the goal was to insert the students and make them dialog with the contexts in

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[3] "Array of activities that teachers and students engage in where a communication is established, allowing for interaction between the subjects, leading to the education of their personality in accordance with the proposed objectives" (Authors collective. Depto. Ciencias Pedagógicas. ISPEJV, 1995).

[4] A term that is accentuated in the context of countries like Chile, where the proliferation of institutions for private university education has resulted in increased access to professional education; however, this accessibility is not necessarily associated with high academic standards.

[5] It is possible somehow to establish that defining the curriculum is a political action, also, which compromises an examination of the concept of country and its sociocultural development. "The curriculum is not neutral; all educational plans are constructed with intentionalities, priorities, and objectives—declared or implied. Fully aware of this fact, the University of Chile opted for a model that would satisfy and, at the same time, maintain those values that belong to and identify it, educating professionals that the country and society nationwide demand, with the highest standards of excellence" (Undergraduate Department, University of Chile, 2008, 3).

[6] "The need to adopt a new educational paradigm, which gradually shifts the focus from teaching-centered education (which the professor does / may do) toward learning-centered instruction, where students must play a key role in their educational process and professors are called upon to examine their approach and pedagogical practices in light of the question, "Is learning taking place?" (Undergraduate Department, University of Chile, 2008, 3).

[7] For the University, "the importance of defining an exit profile that is attuned to society is fundamental to any curriculum innovation processes"—a profile that should be constructed with "awareness of society's demands so that these may be included among [the University's] concerns but so that, at the same time, it would be capable of promoting avenues of development, thus manifesting and maintaining the tradition of leadership entrusted to it" (CMC, 2012, 17).

[8] The term *competencies* is often troublesome because of its association with market demands—a matter that is not in harmony with the spirit of universities committed to the public sector. At the University of Chile, however, the orientation is clear: "The concept of competencies, in the way in which it is meaningful at the University of Chile, is properly understood as a knowledge of how to act appropriately in contexts where problems or problem families pertinent

which they would play a professional role, revealing what the University defines as the *environmental requirement*.[9]

This is a good time to point out that, over the last few decades, the concept of competencies has been widely discussed and analyzed in educational circles. As a result, thanks to an array of ways to approach and interpret this concept, competencies-based university instruction has its defenders and detractors. At the University of Chile, competencies is a concept that has been incorporated because of the new necessities and requirements today's society has imposed. A context marked by profound cultural transformations and by technological advancements that have altered our traditional relationship and approach to knowledge. The University's response to these conditions has been to create an effective link between the future professionals and the diverse settings in which they will act—competencies being understood not as the ability to replicate a solution learned and accepted but the ability to construct innovative responses to problems confronted. Such innovation, however, is also related to the major issues unique to each discipline; thus, the definition of competencies is individualized for the discipline or field in which they are to be performed.

At the University of Chile, we can understand competencies in relation to the conceptualization developed by Guy Le Boterf (2001). For this author, competencies are closely tied to context(s), becoming a *knowledge of how to act appropriately* by recognizing the particularities of the problems confronted. An approach to competencies that promotes the education of professionals who not only have problem-solving skills but also—and most importantly—are able to reflect upon and critique the reality.

Curriculum Management as a Way to Bring Innovation to Fruition

Curriculum innovation is the fruit of an institution-wide commitment the University of Chile has made and, thus, a process involving each and every academic unit of undergraduate education. It is essential, then, to provide context for the curriculum innovation process, based on an understanding that each of these units constitutes a unique realm defined by both its discipline-related emphases and the cultural traditions that underpin them. The success of the innovation hinges upon an understanding that these reforms do not constitute an abstract model that can be implemented the same way across all contexts. On the contrary: proper adaptation of the innovation and a suitable context for it are the keys to its success. Troncoso and Hawes (2007) have proposed a general scheme for curriculum transformation processes in the context of university-educated professions. Their text shows how to bring innovation to fruition using a management model with five phases that are complementary to each other: *policy phase, design phase, set-up phase, implementation phase, and evaluation phase.*

The *policy phase* sets the time frame for decisions to be made and for defining the general strategies that will guide the innovation process, uniting the various entities involved in the change; in the *design phase*, the educational plan and the exit profile are constructed, following the established University-wide guidelines; the *set-up phase* promotes understanding of the cultural context in which the change will occur by communicating its emphases and enabling faculty and students to adopt the new model effectively; the *implementation phase* basically involves setting the innovation in motion and determining the strategies and plans that, in practical terms, will enable it to function; and, lastly, in the *evaluation phase*, the process

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to the profession are confronted and for which personal (knowledge, experience, values, attitudes, etc.), contextual, and network resources are mobilized, with the ability to provide arguments and backing (scientific, technological, ethical, political, economical, social, etc.) for professional decisions and to take responsibility for the results and effects of those decisions" (Troncoso and Hawes, 2007, reviewed in the UCH Undergraduate Department, 2008, 5).

[9] "The above-described acquisition of skills, assessments, attitudes, and competencies has an 'environmental' requirement—that is, the result of actions in the setting in which the formal process is carried out on individuals, with their own modes of interaction in the different academic units, their stimuli of all kinds, the activities that are engaged in beyond the plans and programs of study" (Mpodoziz et al, 2000, 7).

undergoes a critical and reflective review so that the difficulties that continually arise along the way may be corrected. It is important to mention the significance of the *phase* concept, for this is not a succession of steps that are independent realms unto themselves. On the contrary: they are thought of as a process that is articulated over time and requires ongoing feedback.

Curricular Innovation Processes, Faculty of Architecture and Urban Planning, University of Chile

The Faculty of Architecture and Urban Planning (Spanish acronym *FAU*) at the University of Chile has taken a pro-active stance on the institution-mandated innovation process. The three academic majors this unit comprises (Architecture, Design, and Geography), have been working on their own *Curriculum Modernization Commission* (CMC), confronting different sets of problems with varying degrees of success. A relevant but not minor issue is that the curriculum modification process has been coincident with a period of time at the Faculty marked by major changes in its organization, beginning with the drafting of the Faculty's Strategic Development Plan (SDP) and the subsequent *Restructuring Process* initiated in 2009 and recently completed. A context of change and transformation that spurred ongoing reflection within the School and favored the articulation of a coherent academic program and an efficient administrative structure—the objective being to position its three academic careers in a place of privilege at both the national and regional level. For the Architecture career, the design process portion of the *Curriculum Modernization Commission* has been completed,[10] resulting in construction of its educational commitments, design of the exit profile, and definition of the competencies and subcompetencies on which the new basic curriculum—the new program of studies—is structured. According to the curriculum management mentioned above, the innovation is currently in its *set-up phase*, with implementation projected to begin shortly.[11] A process that, as we will see, proposes a substantial expansion of the education architects have traditionally received, calling for more extensive interaction and communication with the outside world and with other disciplines—especially with the other two academic careers in this School. Next, we would like to explain the basic scope of the change in progress, showing the advantages and opportunities afforded by the new plan in comparison with the old one.

Current Educational Plan, Architecture Career, University of Chile

Reviewing the current structure of the Architecture career, we see that the curriculum is not organized in a way that favors linking between the different educational realms—between the different disciplines this academic career encompasses. A fragmentation that, in concrete terms, translates to the theory subjects and the classes that are practices disconnected and isolated from each other. In the first year, the student tackles the combination of basic sciences and an initial exploration of the discipline's major issues—in essence, managing the space and inserting the human being into it; after that, the program of studies proceeds by separating the two different types of classes—architectural design workshops, on the one hand, organized around an increasing level of difficulty, and, on the other hand, the theory classes, organized around four basic lines of study: history, urban planning, construction, and structures. Four areas of training that, except for certain experiences or circumstances, are carried out in isolation from each other, with no direct convergence taking place in the above-mentioned design workshops.

    Starting with the second year, the curriculum design includes a first semester of compulsory courses in theory subjects and a second semester of elective courses that aim to deepen the

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[10] On this subject, it is important to point out that, even though the new exit profile, educational itinerary, and new curriculum documents have been submitted and communicated to the academic community, they are in an ongoing review process that, in the near and distant future, could mean design modifications.

[11] Initially planned for March of 2014, it is now expected to begin in the year 2015.

knowledge imparted in the compulsory courses, thus offering a panorama of educational options considerably wider than that of the first semester. In both instances, despite these expanded options, we see isolated educational processes that not only limit interaction with the outside world but also fail to encourage collaborative spaces. Under these conditions, a diagnosis may be suggested: that the educational scenarios created have repeatedly tended toward dispersion—an issue that, as we see it, hinders students from constructing meaningful learning. The absence of a solid bridge between theory and practice and the fragmenting and duplicating of educational efforts constitute the current curriculum's critical deficiencies—and that is precisely what the innovation process aims to remedy.

Figure 1: Current curriculum, Career of Architecture, University of Chile
Source: FAU Admissions[12]

This organogram is highly questionable because an analysis of the stated objectives for the successive workshops shows a steady convergence—an ongoing integration of the skills developed in theory classes and design exercises.[13] While the statement about the design workshop being the most important course for this career is indeed a shared statement, the educational focus is on exercises in design and on bringing the architectural object to fruition—with no systematic link between this and the rest of the courses, as would favor internal coherence of the educational process. Thus, it is apparent that, without meaningful dialog

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[12] Corresponding to the curriculum structure study plan for the year 1998, in which four stages were differentiated: initial, advanced, professional, and credentialed. After a first annual and compulsory year, starting with the second year and up to the fourth year, the first semesters are for compulsory courses (history, urban planning, structures, construction) and the second semesters for elective courses. "The situation to which students are exposed is markedly polarized, in the sense that they experience a very rigid schedule, generally in the first semester, when the classes are compulsory and their content is the basics and the essentials of each discipline, compressed in time and very specific—then a 'free will' situation in which the spectrum of choice is opened up with the intention of seducing the student with all the possible fields of specialization" (Goldsack et al, 2004, 6).

[13] The current educational plan for the Architecture career establishes and states an increasing integration of the disciplines in the workshop space; in practice, however, this integration is far from occurring systematically and coherently. "Objectives for the workshop classes are quite generic, and it is left to each professor to design his/her own strategy for achieving them. (…) Integration, therefore, happens only by coincidence—not as a strategically planned and developed goal" (Goldsack et al, 2004, 6).

between the different disciplines, students' knowledge is scattered and their time is wasted—for without proper integration of the educational spaces, they are forced to fragment their tasks rather than focus their efforts on coordinated learning.

The Scope of the New Proposal: Expansion of the Settings for Educating Architects

In view of the scenario described above and the need to secure a comprehensive and convergent approach to every problem the future architect will face, the new exit profile calls for expanding the traditional education for architects, with a redefining of *project*—a key concept in this discipline throughout its modern history[14]—as a continuous cycle[15] beginning with the initial drafting of a diagnosis to detect major issues and ending with an evaluation of the answers that were ultimately materialized—a phase that allows a new and successive design sequence to be initiated. Under these parameters, the aim is to create an educational milieu that allows more interaction between the parties involved—both with the outside world and between the different disciplines this career encompasses. Specifically, between the theory courses and the practice courses, which would enable the Faculty to evidence all aspects of its educational seal: the problematization and delivery of responses and solutions in a multiscalar setting.[16]

Figure 2: New exit profile, Architecture career, University of Chile
Source: CMC-ARQ FAU.[17]

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[14] Basically, since the Renaissance—a period in which architects gained the status of intellectuals who *had ideas* that they subsequently *materialized*, the basic sequence of the *a priori* notion of the project.

[15] "(…) the project is understood not as a product but rather as a process that results in an architectural production, which begins with the diagnosis (design research) and continues with planning and design, followed by managing the materialization; this project life cycle concludes with coordinating the materialized product's operation (proposal follow-up, testing, and intervention)" (CMC, 2012, 49).

[16] The *2012 Undergraduate Faculty Strategic Plan* proposal maintains: "Our main objective is to ensure an educational process of excellence for all stuents enrolled in this School. We will create a space that has its own identity, beginning with enhancing the space we have in common (multiscalarity of space and objectives, and equilibrium between the constructed environment and the natural environment), seeking complementarity of the academic careers and quality of the educational process, beyond the particularities of each program."

[17] As mentioned, the new exit profile understands the action of design of project as a far-reaching endeavor in which art, technology, and the social sciences coexist and converge. In this way, if, generally speaking, an architect's education is

In keeping with the general orientation for curriculum innovation at the University of Chile, the new exit profile aspires not only to mastering the content but also to transforming and grasping it as meaningful knowledge, based on situating it properly in sociocultural contexts. Curriculum innovation at the University—and, likewise, for the Architecture career —is premised upon an enduring integration of students with the community in which they will function as an active professional. An orientation that translated to proposal of the new curriculum, which encourages students to solve problems that have been properly contextualized and integrate contributions from the different disciplines that coexist within this academic career.

The new Architecture curriculum should foster a more direct communication between students and reality, between students and the problems and challenges that shape the country's development scenario—what we could call the *complexity of everyday life*. In this regard, the goal is to break through the limitations of an abstract space where knowledge is transmitted and disseminated and move toward reflective practice, ridding ourselves of educational systems that are geared to autonomy and independence but often make no sense and lack meaning for students. Thus, it is the aim of the new educational itinerary to fine-tune professionals who grasp and interact with the setting, adopting the complexity as the very context for the discipline's encounter with reality. Under these parameters, the new plan of study's educational commitments are established, which, in essence, translate to four basic orientations: the *expansion of educational settings for architects*, as mentioned above; a rereading of the *project* as a *continuous process*; the enduring *integration of the disciplines* within the career; and, lastly, an *open and ongoing dialog with the outside world*—the community. A set of commitments thtranslate to a sequential educational itinerary,[18] an enduring integration:

CYCLE	SUBJECTS	INTERVENTION	PROGRESSION
Cycle 1	Mastery of shape, space, and habitability (persons and acts)	PROBLEMATIZE, interact, ideate, and model	MODEL
Cycle 2	Integration of environment[19] and technology	CONTEXTUALIZE, integrate, synthesize, and design the habitat	DESIGN
Cycle 3	Integration of context[20] and management	RESEARCH, evaluate, manage, project , and publish	PROJECT

Figure 3: Proposal for "workshop" training cycles.
Source: CMC-ARQ FAU.

associated with design and materialization, the new profile incorporates two new realms: diagnosis and coordination of the operation. Thus, the profile is redefined on the basis of four areas: *diagnosing, designing and planning, managing the materialization, and coordinating the operation*, in addition to the realm of *research*, understood as a transversal process.

[18] A sequential itinerary in that educational cycles are established in association with periods of progress in the students' learning itinerary. Each of these cycles is associated with the completion of certain educational objectives specified by the new curriculum design, and these, in turn, translate to students incorporating competencies and subcompetencies. It is important to point out, also, that these cycles are configured in terms of the four educational realms defined by the new exit profile: *Diagnose, Design and Plan, Manage, Coordinate.*

[19] This is understood as the entire surrounding physical system, as the urban setting, the landscape, and how these variables impact the project.

[20] Understood as the temporal space in which the project is established—the political, social, philosophical, economic, and theoretical conditions as well as the state-of-the-art conditions within the discipline, etc.

Three training cycles in association with specific instances of integration, internal as well as external: the first cycle (MODEL), in which the goal is to problematize around manipulating the shape in relation with the human beings present and their actions; the second cycle (DESIGN), which teaches integration of variables in the physical environment with technological options for the solutions delivered; and, lastly, the third cycle (*Project*), which aims to reconcile students' proposals with their proper management and ongoing evaluation over time. Cycles that, in turn, define and specify the different spaces for integration with the Faculty's two other careers, accounting for the *multiscalar* educational seal that defines this educational unit.
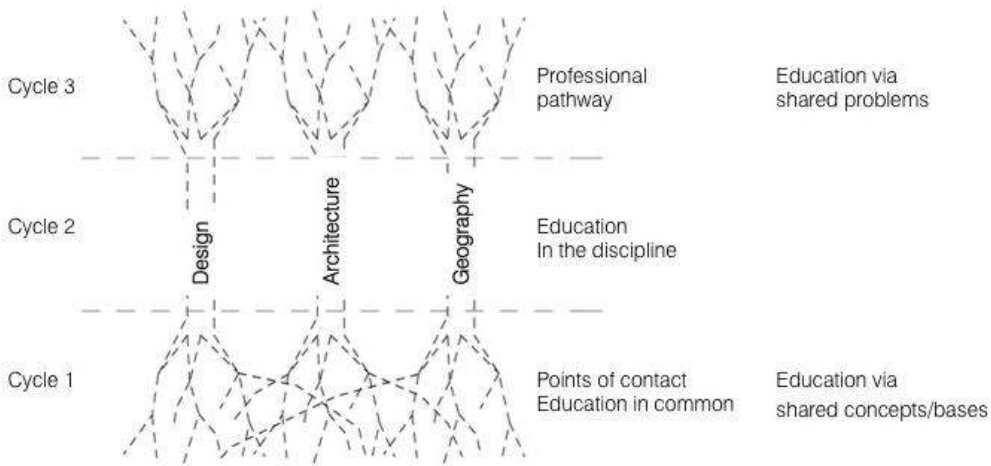
Figure 4: Proposal for linking the three academic majors.
Source: CMC-ARQ FAU.

A new educational plan that aims to disrupt and abandon the practice of fragmenting educational spaces—to close the gap between design workshops and the rest of the classes—and to forge a solid bond between reflection and experience, thereby educating professionals who learn to keep a watchful eye on reality. An understanding that this is possible not only in terms of incorporating knowledge but also in linking and interacting with the circumstances articulating this context.

Implementing Curriculum Modernization for the Architecture Career: Challenges and Opportunities

For the Architecture career, as we have mentioned, the curriculum innovation process is currently in its set-up phase—a period of time that is considered key to the success of the process, for this is when the cultural dimension of the change is configured[21]—when the university community is encouraged to commit to the objectives proposed by the new educational plan, to adopt them as their own, and also to identify what is needed and required to initiate this new stage. While this phase is being completed and articulated as a process of unfolding and internalizing the dynamics of the change, we can confidently tackle the implementation process for the new plan of study, understanding this last phase not only as the basis for defining new courses or training cycles but also as the work that enables us to determine the feasibility of putting the innovation into

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[21] Enabling changes to be effectively brought about in behaviors and practices that are strongly rooted in the teaching tradition.

operation.[22] In this regard, it is necessary to ponder strategies for launching the implementation, taking into consideration questions such as *how and in what way do we carry out the process of implementing curriculum innovation for the Architecture career?* and *what elements, in particular, must be considered for carrying out this implementation?* Based on these questions, and with a proactive stance, we propose that an implementation strategy be constructed around the articulation of three main variables: *identification of the educational vision* at the University of Chile; coordination over time of the *curriculum management model* previously mentioned; and contextualization of the two variables mentioned above pertaining to Architecture as a *disciplinary field* and its particular insertion into the Faculty of Architecture and Urban Planning.
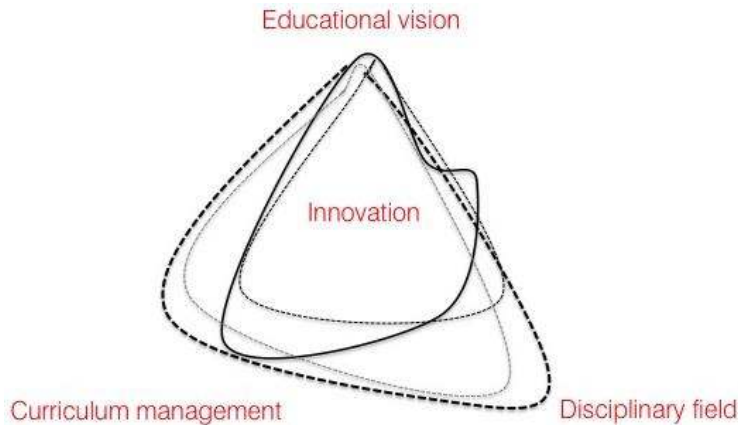

Figure 5. Strategy for implementation
Source: Author's compilation

By breaking down each of these variables, we can establish, as mentioned, that *educational vision* is associated with an institutional mandate—with a role the University has traditionally assumed for the purpose of directly involving itself in the country's primary concerns. An acknowledgment of the *character* of the University of Chile, which considers itself to be the educational hub where all those worries shaping the public arena reside *par excellence*. At the University, creating professionals demands the comprehension of well-rounded individuals who not only are competent in their discipline but also—and most importantly—place their knowledge and the skills they have developed at the disposal of various action contexts. As for *curriculum management*, this is key when it comes to putting the innovation into effect, for it guides the transformation process suggested by those abstract models that devise educational plans, transforming them to specific instructional practices. Together with the existence of the above-mentioned model, validated at the University, the management problem suggests the need to understand and adapt this process to the internal dynamics of each department and/or institute undergoing innovation. Lastly, comprehension of the *disciplinary field* in which the innovation will take place is a basic task for the required contextualization of the process mentioned here.[23] A field that, in our study case, must take into consideration not only Architecture but also its

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[22] As Troncoso and Hawes (2007, 5) have stated, in the implementation phase, "the modernized curriculum is put into operation, activating the educational plans and work programs. It involves a process (in terms of the same phases described) of organizational adjustment to the curriculum's demands through constructing the appropriate platform of opportunities that is required to move the educational processes forward and making this platform available to students, teachers, and managers. It has to do with the organizational responses to the demands posed by a new concept of curriculum—responses in various areas, such as facilities, equipment, financial resources, technology, regulations."

[23] On this subject, thinking of innovation as nothing more than a technical issue is a limitation. As for the orientation about the curriculum design, this involves a disciplinary examination to reflect upon the emphases and orientations that a given educational institution wishes to consolidate as the distinctive seal of its various educational spaces.

connection with Design and Geography, as well as other related disciplines, opening up discipline boundaries without losing those points of view that are peculiar and unique to architectural practice.

Three variables that, as we see it, translate to the need to undertake the following specific tasks of implementation: 1) explicit description of the *level of change* that has been promised, actively involving professors and students in the process; 2) the articulation, continuity, and *coherence of the different disciplines* involved in the academic career and the interaction between them; and 3) the establishment of an *administrative teaching policy*, in accordance with the new educational model, that prioritizes spaces for interdepartmental integration. In this way, depending on the interaction between the three variables mentioned above (*educational vision, curriculum management, disciplinary field*) and the respective, specific tasks indicated, it is possible to recognize and effectively take on the change proposed by curriculum innovation. A recognition that, in turn, enables us to make a precise and well-defined determination of the strategies required to implement the new curriculum design, orienting the seal of this change and effectively incorporating each and every participant involved.

Conclusions: The Architect as a Reflective Professional

In view of the challenge of insertion into a reality that is ever more fragmented and marked by uncertainty, architect Stan Allen (1997) proposed that the discipline needs to be understood in association with the circumstances that continually emanate from a complex reality. It is precisely from this outlook that Allen's concept of *field* arises: a context of insertion and ongoing dialog between architecture and the different action spaces into which it inserts itself.[24] The approach Allen developed for this discipline may well be allied with Donald A. Schön's call to educate *reflective professionals* (2010). For this author, a reflective professional must be capable of "thinking about what is done while it is being done," thus defining reflection-in-action.[25] A *reflective practicum* that is of great interest in the education of professionals in the creative disciplines, as is the case of architecture. For Schön, the design process is, in and of itself, a *reflection-in-action* exercise, in that students are obligated to take on the singularities of the problems they confront and, in relation to them, choose and deploy the resources that will enable them to make decisions that are appropriate for solving these problems. Such exercises also encourage exploratory activities on the part of students, which enriches their educational process in that, when they confront a new situation, they reaffirm their knowledge and tools so that they can respond satisfactorily by reflecting, once again, in the middle of the same action. In this way, the hope is that future professionals will permanently link action with reflection, also fomenting the creation of professionals who take a critical approach not only to reality but also, and above all, to the training they have received for confronting this reality. From this standpoint, we can think of the educational process as not only the accumulation of "good knowledge" and "good practices" but also a dynamic space in which theory and practice repeatedly interact, overcoming the long-standing distance between what is known, what is thought, and what is done.

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[24] According to Allen, "the term 'field condition' is, at the same time, a reaffirmation of contextual architecture's mission and an idea as to how its program may be accomplished. Field conditions moves from the one toward the many, from individuals to collectives, from objects to fields. Architects must work not only in an office or studio (in the laboratory) but also in the field: in contact with the fabric of architecture. (…) Field conditions views restrictions as opportunity" (Allen, 1997, 24).

[25] Schön states: "Alternatively, we could reflect in the middle of the action without going so far as to interrupt it. Within an existing action—a period of time that varies, depending on the context, during which we can still make a difference with the situation we have at hand—the act of thinking serves to reorganize what we are doing while we are still doing it. In cases like this, I would say we are reflecting in action" (Shön, 2010, 37).

Figure 6. Relationship between experience and practice in the new exit profile
Source: Author's compilation

If the curriculum innovation processes underway at the University of Chile state that incorporating the competencies paradigm is a guiding element of the new educational plans, we must ask ourselves for strategies that are effective in linking knowledge with reality and theoretical tools with the various action fields in which students will be performing. To find answers to this question, a good place to start would be to avoid consolidating rigid and fixed educational structures and to allow students to recognize and interact with the reality, understanding it as a complex realm that is full of uncertainties. This will force them, at the appropriate time, to utilize the resources and tools acquired to give conscientious and meaningful responses within the various action realms in which they will be inserted, articulating what Peter Senge defines as *systemic thinking*,[26] avoiding isolated educational spaces where every class defines its own objectives independently without contributing to the educational context that must be understood as a unified whole.

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[26] "That is why systemic thinking is the fifth discipline." It is the discipline that integrates all the other disciplines, fusing them into a coherent corpus of theory and practice" (Senge, 1994, 20).

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