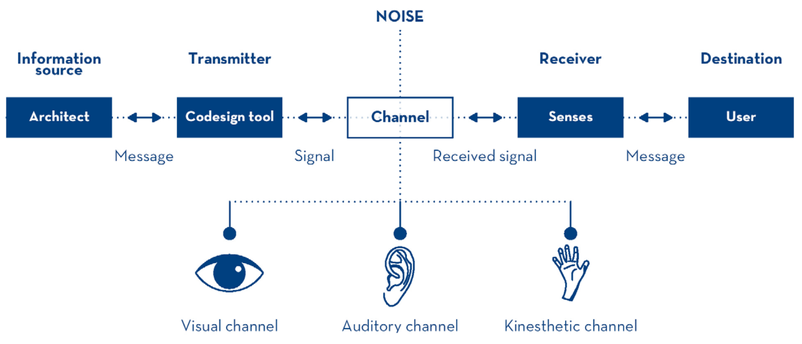
UNO A UNO 2 EXPERIENCIAS PROYECTUALES Y 3 HERRAMIENTAS DE CODISEÑO

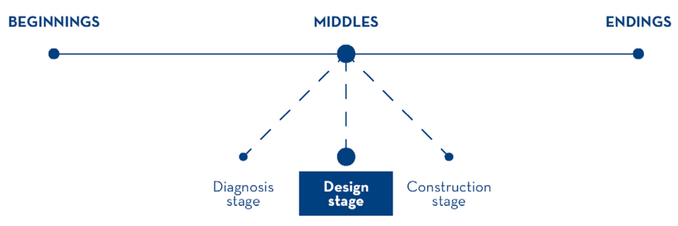
Diego Cárdenas, Roberto Burdiles, Nelson Arias
Magíster Latinoamericano en Arquitectura, Universidad del Bío-Bío

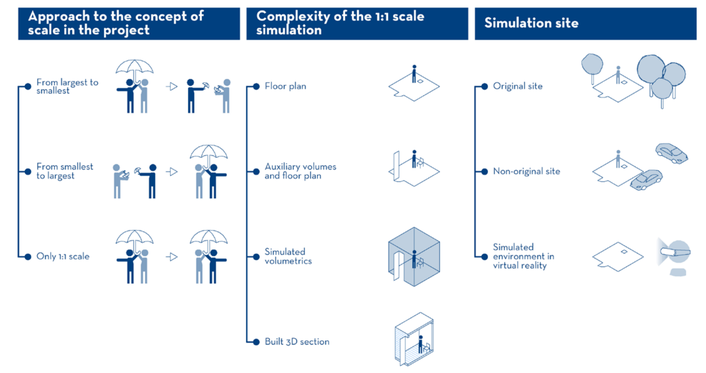
En el campo de la arquitectura, el codiseño se ha explorado mediante diversas metodologías y herramientas, aunque estas últimas se encuentran aún en sus etapas iniciales en cuanto a su capacidad de comunicación efectiva con los usuarios, lo que puede llevar a procesos menos inclusivos. En este contexto, el uso de modelos a escala natural surge como una herramienta alternativa de codiseño, gracias a su capacidad para proporcionar información, involucrar a los usuarios y fomentar el aprendizaje mutuo.

Esta investigación profundizó en este tema, contrastando los modelos a escala natural con dos herramientas participativas tradicionales, a saber, las visualizaciones arquitectónicas y los modelos a pequeña escala. Se experimentó con dos procesos de diseño, aplicando la investigación-acción como metodología, con un enfoque principalmente cualitativo. A través de mapas, documentación fotográfica y encuestas, se representaron gráficamente las interacciones experimentadas por los usuarios con las tres herramientas.

Esta información se comparó luego mediante una tabla de evaluación, que demostró las ventajas de cada herramienta que atenúan sus limitaciones respectivas. Por ejemplo, las visualizaciones arquitectónicas destacan por su rapidez en la transmisión de información, los modelos a pequeña escala ofrecen flexibilidad, y los modelos a escala natural mejoran la inclusividad. Esta tabla puede servir como guía para planificar otros procesos de codiseño.







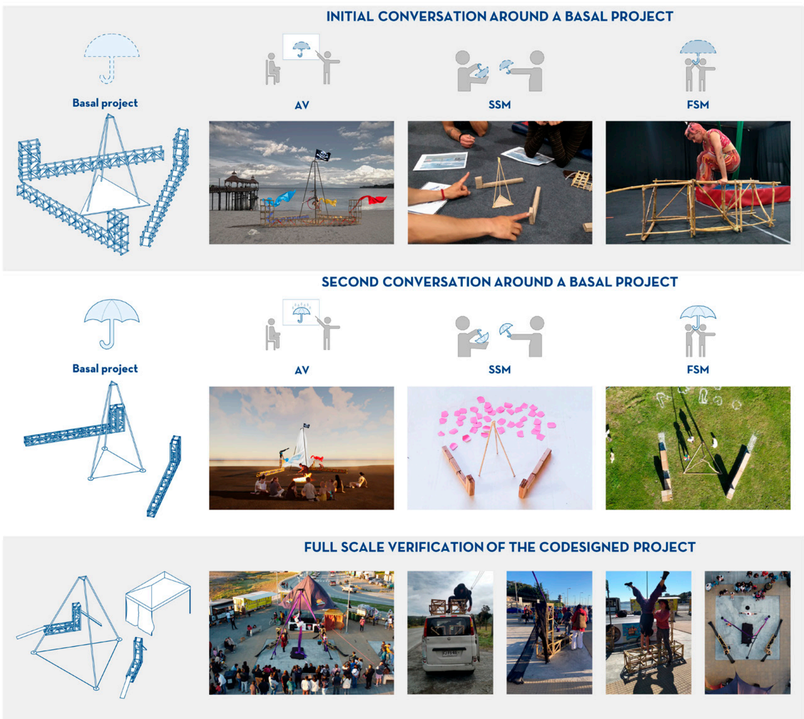
- **Guide participant**
  Corresponds to the architect who presents the project, facilitating the design process.
- **Validating Participant**
  Acts out using the proposal through body language, either using only hands, some external device, or the entire body. Based on these actions, they validate whether the design is correct or not.
- **Propositional Participant**
  Based on their observations, proposes changes to the design.
- **Dialoguing Participant**
  Actively asks questions and comments on their opinion.
- **Observing Participant**
  Limits themselves to observing the project, responding only when directly asked.

PRIMER CASO. Barco pirata circense. Procedimiento y herramientas

PILOT PROCESS
CIRCUS COLLECTIVE

Total working time **3 months**
Participants **5 artists** Average age **28 years old**

MOMENT	PHASE	DURATION	STEPS	STRATEGIES	DATA COLLECTION TECHNIQUES
BEGINNINGS	Call for projects	1 week	Searching for projects through contact networks.	• Contact people with ongoing initiatives.	Conversations
	Stage 0	4 hours	Approaching to the representative of the circus group.	• Conversation about the possibilities of the research project and the artists' expectations.	Semi-structured interview
MIDDLES	Diagnosis	2 hours	Group diagnosis.	• Information gathering and identification of architectural needs.	Conversations Participant observation Drawings
	Design I	32 minutes	Initial conversation around a basal project.	• Collective modification of a basal project through 3 simultaneous design tools (AV, SSM and FSM).	Participant observation Photographic record Mapping Chronometry
	Design II	32 minutes	Second conversation around a basal project.	• Continuation of the collective modification of a baseline project using 3 simultaneous design tools (AV, SSM and FSM).	Participant observation Photographic record Mapping Chronometry
	Construction	2 weeks	Obtaining material resources for construction.	• Collection of colihue. • Buy materials for construction. • Construction of the project (only the architect).	Photographic record
	Staging	6 hours	Full scale verification of the codesigned project.	• Validation of the final design in a full scale prototype.	Participant observation Photographic record Mapping Chronometry
ENDINGS	Conclusions	2 days	Understanding the experience through feedback with the participants.	• Survey application.	Surveys Analysis of survey results



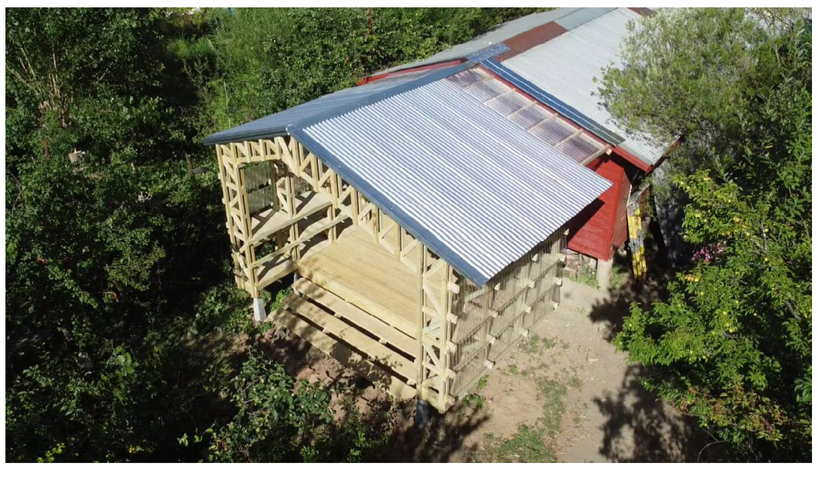
SEGUNDO CASO. Aula de la lluvia. Procedimiento y herramientas

SECOND PROCESS
SCHOOL

Total working time **3 months**
Participants **25 students** Average age **16 years old**

MOMENT	PHASE	DURATION	STEPS	STRATEGIES	DATA COLLECTION TECHNIQUES
BEGINNINGS	Call for projects	1 week	Searching for projects through contact networks.	• Contact people with ongoing initiatives.	Conversations
	Stage 0	1 hour	Approaching the director of a rural school with initiatives.	• Conversation about the possibilities of the research project and the school's expectations.	Conversations
		2 hours	Approaching professors of selected courses for collaboration.	• Coordination for participation with students.	Conversations
		2 hours	Meeting with participating students.	• Conversation about the possibilities of the research project and the students' expectations.	Participant observation Photographic record
MIDDLES	Diagnosis	1 month	Group diagnosis.	• Information gathering and identification of architectural needs.	Participant observation Drawings and Mappings Surveys Analysis of survey results
		2 weeks	Student interaction with the different codesign tools.	• Separation of initial group in 3. • Organization of groups according to time availability.	Photographic record
	Design I Group I AV	25 minutes	Conversation around a basal project.	• Collective modification of a basal project through Architectural Visualizations.	Participant observation Photographic record Mapping Chronometry
	Design I Group II SSM	45 minutes	Conversation around a basal project.	• Collective modification of a basal project through Small Scale Models.	Participant observation Photographic record Mapping Chronometry
	Design I Group III FSM	2 hours	Conversation around a basal project.	• Collective modification of a basal project through Full Scale Models.	Participant observation Photographic record Mapping Chronometry
	Design II Group I AV	30 minutes	Full scale verification of the codesigned project.	• Collective validation of the project developed through Architecural Visualizations, using FSM.	Participant observation Photographic record Mapping Chronometry
	Design II Group II SSM	26 minutes	Full scale verification of the codesigned project.	• Collective validation of the project developed through Small Scale Models, using FSM.	Participant observation Photographic record Mapping Chronometry
	Design II Group III FSM	20 minutes	Full scale verification of the codesigned project.	• Collective validation of the project developed through Full Scale Models, using FSM.	Participant observation Photographic record Mapping Chronometry
ENDINGS	Conclusions	2 hours	Understanding the experience through feedback with the participants.	• Group conversation about the experienced process, with teachers and students.	Surveys Analysis of survey results
		1 hour	Reflection with the new school director.	• Presentation and feedback of the results obtained.	Surveys Analysis of survey results

CONTINUIDAD. Aplicación de modelos 1: 1 en microproyecto Sustento



COMPARATIVE TABLE

	Simultaneity	Interaction time	Participant role	Satisfaction	Comfort	Speed	Magnitude	Environment and context	Initial monetary cost	Climatic	Logist
FSM	+	+	+	+	+		+	+	−	−	−
SSM					+		−	−		+	
AV	+	−	−		−	+	−	−	+	+	+
POSITIVE (+)	Ability for all users to work simultaneously	Participation time over 30 minutes.	More than 50% of participants with validating and propositional roles.	Achieving more than 4 points of satisfaction without a decrease in this aspect in the final proposal.	The tool was the most preferred by users.	Quick understanding of the general idea of the project after its explanation.	Tool's ability to provide information about the material, such as dimensions, resistance, and weight.	Tool allows the integration of environmental factors into the proposal.	Tool costs no more than 10 USD to produce.	Not affected by environmental conditions.	Can be produce easily an quickly.
NEUTRAL	Ability for some users to work simultaneously	Participation time between 20 to 30 minutes.	More than 50% of participants with validating, propositional, and dialoguing roles.	Achieving more than 4 points in the final proposal.	The tool was the second most preferred by users.	Understanding the general idea of the project after 5 minutes of explanation.	Tool's ability to provide information about dimensions.	The tool makes it easy to imagine environmental factors in the proposal without the need for explanation.	Tool costs more than 10 USD to produce.	With precautions, not affected by environmental conditions.	Requires planning at least 1 of work.
NEGATIVE (−)	Ability to work with only one user at a time.	Participation time up to 20 minutes.	Less than 50% of participants with validating, propositional, and dialoguing roles.	Achieving less than 4 points in the final proposal.	The tool was the least preferred by users.	Understanding the general idea of the project after 10 minutes of explanation.	Tool does not provide clear information about dimensions.	Tool makes it difficult to imagine environmental factors without and explanation.	Tool costs more than 50 USD to produce.	Environmental conditions must be considered for its application on site.	Requires planning transpor n, coordina and at le 3 days o work.