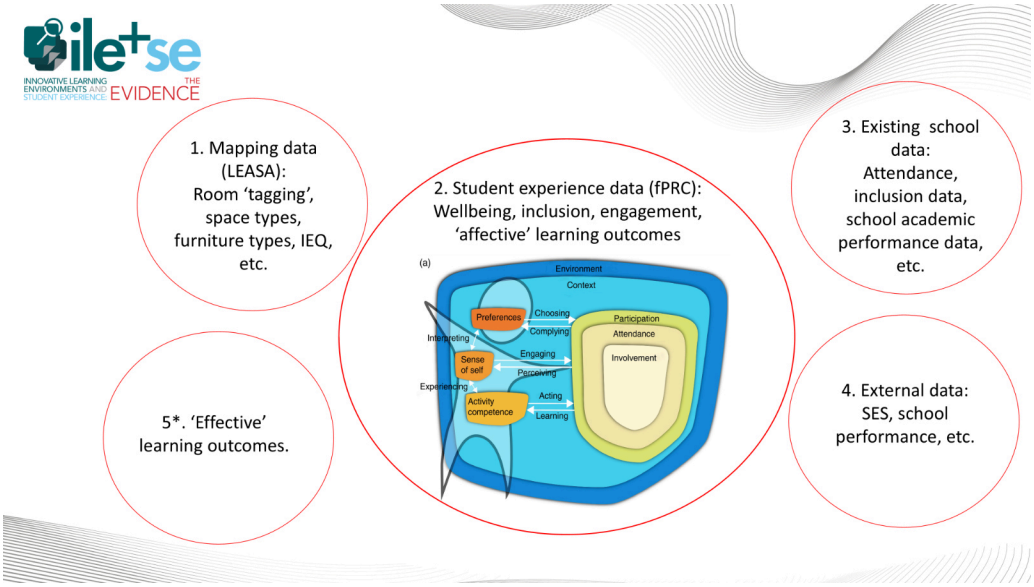
ARGO will be the 'heartbeat' of ILESE, a totally unique interactive repository of evidence about how students believe they benefit from good learning spaces0

Structure

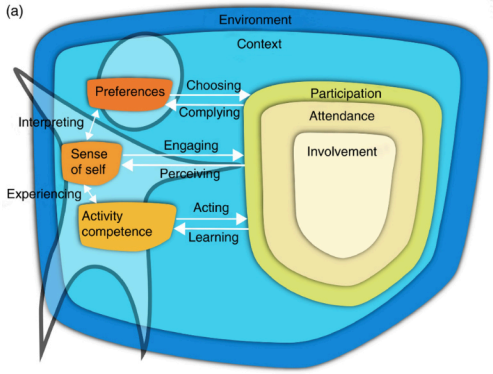
ARGO will be a non-relational database utilising NoSQL logic. Data comes from seven measurement tools applied in an anticipated 400 schools. The tools range from audits, surveys, mapping exercises, and stand-alone measurements such as IEQ qualities and design typology assessments. The diagram below shows how these are clustered. Cluster 1 maps or categorises the space within which the student data will be collected. Cluster 2 is a purpose built student survey gathering perceptions of academic progress, inclusion, well-being, participation and engagement. Cluster 3 collects specific school demographics to allow for comprehensive cross-site correlation analyses across all variables. Cluster 4 provides data for international comparisons. Cluster 5 is a 'plug-in', a measure of effective student learning outcomes, to be developed.



Theoretical framework

The central ARGO measurement is the student survey, developed from a sophisticated Framework of Participation Related Constructs (see below). Conceived by health science research hubs in Canada, Sweden and Australia the fPRC assists full participation in daily living of children with a disability. The ILESE team worked with these hubs to apply this framework to a spatial context.

Environment	The structures within which we live
Context	The settings within which we participate
Participation	Being involved (attendance + involvement)
Engagement	Macro (within society); systemic (within daily constructs); personal (focus and effort)
Preferences	Our interests that matter
Activity competence	What we are capable of doing, what we actually do, how well we do these
Sense of self	The intra-personal; self-esteem, confidence, determination
Self-regulation	Our executive processes that drive what we achieve



Framework from Imms, C., Granlund, M., Wilson, P. H., Steenbergen, B., Rosenbaum, P., & Gordon, A. (2016). Participation – both a means and an end. A conceptual analysis of processes and outcomes in childhood disability. *Developmental Medicine & Child Neurology, 59*(1), 16-25.

Data logic

Argo will process data following the schema provided below. The acronyms in the last box reference the seven measurement tools being used to populate ARGO.

ARGO
The ILESE database

What 'issue' needs to be addressed?

What data is required?

SELECTING THE DATA	School-based data	Eng/Participation data	Inclusion & Well-being data	Affective L/O data	Effective L/O data	Int Benchmarking data
	Cluster 1 Mapping data (LEASA and SDU survey) and Cluster 3 Existing school data (SPA)	Cluster 2 Student experience data (fPRC - S&SS survey)	Cluster 2 Student experience data (fPRC - S&SS survey)	Cluster 2 Student experience data (fPRC - S&SS survey)	*Cluster 5 - Plug in coming (E/LO)	Cluster 4 External data (IBA)

What data types are available?

FILTERING THE DATA	Nominal	Ordinal	Interval	Ratio
	The data can only be categorized.	The data can be categorized and ranked.	The data can be categorized and ranked, and evenly spaced.	The data can be categorized, ranked, evenly spaced and has a natural zero.

What purpose will the analysis need to meet?

ESTABLISHING PURPOSE	Comparing	Ranking	Identifying trends	Predicting	Resourcing	Engaging
	What options exist?	Which are most effective?	What patterns exist?	Which will be most suitable?	What is the most pragmatic option?	Which informs user needs?

What analysis method/s match?

APPLYING ANALYSIS	LEASA	SDU	SPA	S+SS	EL/O	TMF	IBA
Descriptive	*	*	*	*	*	*	*
Correlation		*	*	*	*	*	*
Regression				*	*	*	
Qualitative			*	*	*	*	*
Inferential				*	*	*	*

Process

The diagram below hypothesises how ARGO may be used by partner organisations. It emphasises that ARGO is a repository of evidence, with the capacity to bring to one issue a considerable array of evidence. It will not 'solve' a problem or issue, but will provide Partner Organisations the evidence they need to make informed decisions

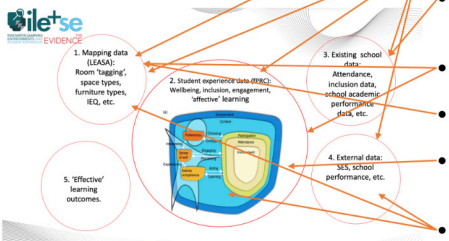
Some examples

ARGO will service multiple groups of people with specialised evidentiary reports. Below are two ‘scenarios’ giving examples of how ARGO might be used.

I am a Principal.

Our school is working hard on collaborative teaching practices that improve student deep learning. What evidence exists about the best learning space design for this?

What can ARGO tell us?



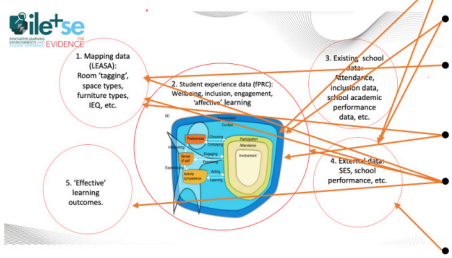
ARGO responds, ‘Our report contains…”

- Data from 401 schools that cater to students within this age group. 106 match your school demographic profile.
- Data that maps these spaces (yours and the other schools) against a six-point ‘learning space typology’.
- Data from these schools rating their students on a five-point Likert scale against Biggs Deep Learning Characteristics.
- Data from these schools rating teacher pedagogies against a scale developed from Hattie’s 10-point ‘high impact teaching strategies’.
- Analysis that correlates these variables - deep learning, teaching styles, and spatial types.
- LEASA analysis to quantify fine-grained qualities of design in these spaces.
- Correlations between these design types, deep learning, and multiple student variables concerning their well being, inclusivity, and learning outcomes.
- We will compare your situation with ‘like’ schools, across countries and socio-economic or other variables.

I am an architect.

What design characteristics have high levels of approval from students who experience limited physical mobility.

What can ARGO tell me?



ARGO responds. “Our report contains…”

- Data from 48 schools in 10 countries that have student ratings at or higher than 8/10 in terms of accessibility.
- Data (for your comparison) from an additional 110 schools across 17 countries with ratings at or lower than 4/10.
- LEASA modelling (of the 48 highly rated schools) showing they consistently utilise the common design characteristics contained in our attached report.
- LEASA modelling that shows six design characteristics are consistent with the lower ratings.
- Correlations between these ‘accessibility-favourable’ design types, and multiple variables concerning student well-being, inclusivity, and learning outcomes.
- Approved contact details for 28 of the 48 schools that also rate highly, if you wish more nuanced data.