



LEAGUE - FRAMEWORK

**Codifying Game-based Learning: The LEAGUE
framework for evaluation**

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Agenda

- A bit about Game-based learning
- Related work
- Research Questions
- Scope of terminology
- T-Relations
- Uses

Game-based learning (GBL)

- Use game principles to learn
- Engage students
- How to evaluate the effectiveness?



Problems

Problem 1

Too specific - Single aspect of GBL

Problem 2

Diverse evaluation elements

Problem 3

Too specific - Single aspect of GBL

Problem 4

Inconsistency in GBL literature

Research Questions

RQ 1

What are the core dimensions for evaluating educational games?

RQ 2

Which factors are important for achieving each core dimension?

RQ 3

Are there any sub-factors for assessing these factors based on theoretical constructs?

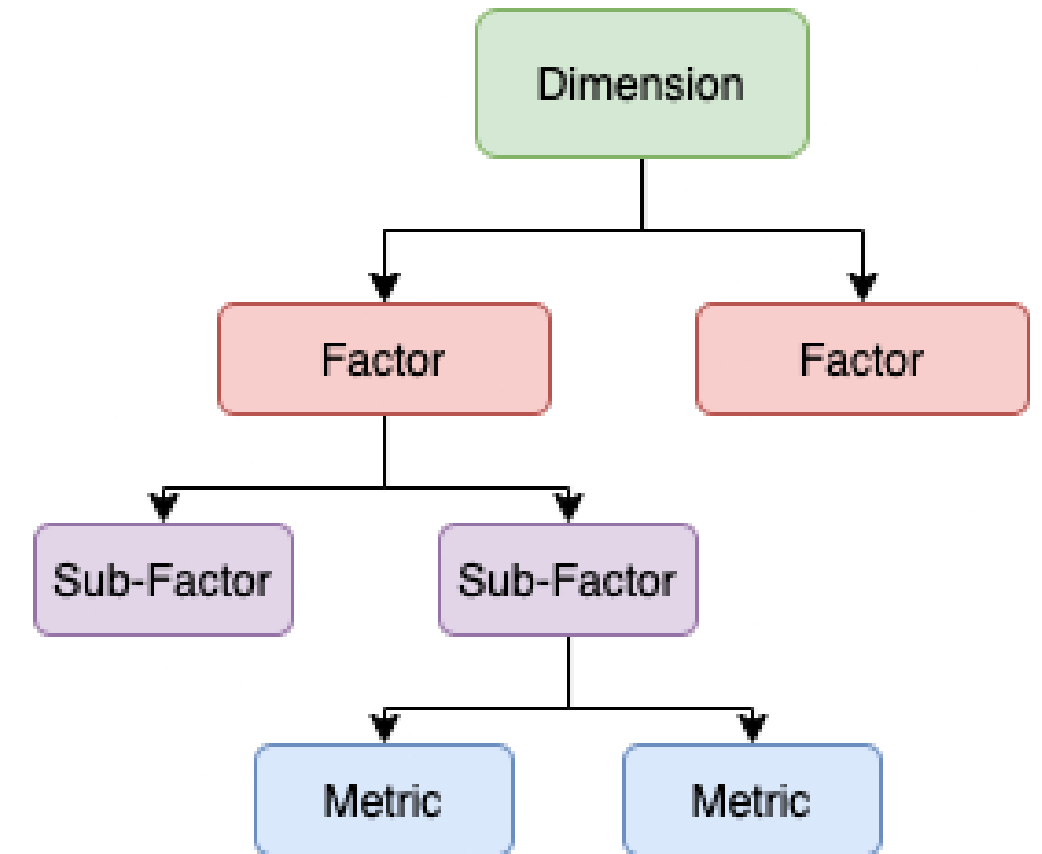
RQ 4

What metrics can be used to quantify these factors/sub-factors?

RQ 5

Are the core dimensions related?

Unit of analysis



Dimensions

Main goals/objects

Represent specific aspect.

Factor

Element in achieving a dimension

Sub-factor

Further categorization of factor

Metrics

Measurable element for (sub)factor.

Objective or Subjective.

Qualitative or Quantitative.

Dimensions LEAGUE

6 Dimensions



Learning



Environment



**Affective Cognitive
Reactions (ACR)**



Game Factors



Usability



user

Factors

22 factors

74 sub-factors



Learning

Objective, strategies, content, outcome



Environment

Technical, context



ACR

Enjoyment, engagement, motivation, flow



Game Factors

Definition, narrative, play mechanics, resource, aesthetics.



Usability

Interface, learnability, satisfaction.



User

Learner profile, cognitive needs, psychological need



Metrics

5 metrics

Scores

test score - Objective

Time

Learning time - Objective

Number of occurrences

No of failures - Objective

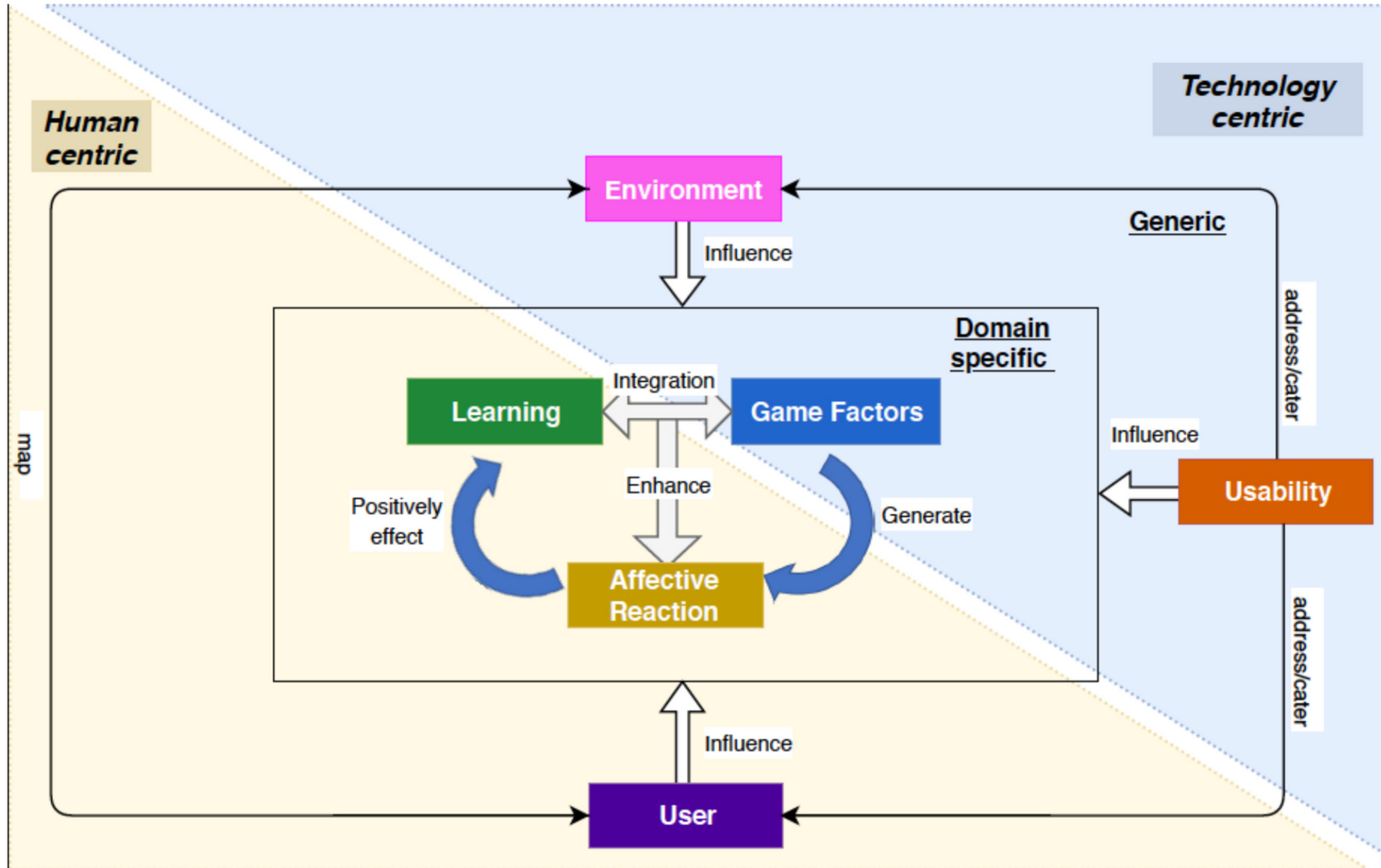
Rating

likert scale - Subjective

Reviews

Expert Review - Subjective

T-Relations



Uses

Planning

Formulate research questions and determine the main objective.

Design

What evaluation type?

Design data collections using the LEAUGE metrics

Analysis

Conduct evaluation and analyze results

Conclusion

RQ 1

Learning, Game Factors, Affective-cognitive reactions, User and Environment

RQ 2

The LEAUGE framework presents 22 factors

RQ 3

The LEAUGE framework presents 74 sub-factors

RQ 4

Scores, Time, Number occurrences, Rating, Reviews/responses/opinions

RQ 5

Dimensions are related to each other and will affect each other.
