The Educational Role-Playing Game Design Matrix: Mapping Design Components onto Types of Education

Popular abstract: In analog role-playing games and larps, the design will often include not only what happens during the time we play but also what happens before and after the game. From a design perspective, we can categorize these as two different designable components: the gameplay and the framing, the latter of which is divisible into pre-game, mid-game, and post-game phases. These designable surfaces (Koljonen 2019) can be intended for either leisure or educational purposes.

In light of this understanding, the Educational Role-playing Game Design Matrix is proposed as a way of calling attention to the different designable components in relation to their intended purpose. The matrix is meant as a conceptual framework for designers and educators. The purpose of the matrix is threefold: 1) to allow for a common language among game designers and educators; 2) to help designers create games that actively and intentionally address the formal or informal learning the designer wishes to engender in the participants of their game; and 3) to help educators identify if a game fits with their intended learning, what parts need to be addressed for it to do so, and if the game is worth the effort.

First, this article details the purpose of the authors' work, sets the context, and defines the terminology. Then, it outlines the main characteristics of the matrix and how they relate to types of education. Furthermore, the applications and limitations of the Educational Role-Playing Game Design Matrix are discussed.

Keywords: education, leisure, analog role-playing games, game design, framing, learning objectives

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1. INTRODUCTION

When working as an educational game designer over the last decade I have felt that I lack the terminology to talk about different types of educational games, their parts, and how these aspects relate to the design process and learning. When talking to other game designers I have had questions like: What is the difference between designing a game for educational purposes versus a leisure game? What parts of the design are affected? What does this design choice mean for the designer?

When talking to educators I have had questions like: How does the design affect the learning process? Do different types of design facilitate different types of education? These inquiries led me to create the Educational Role-playing Game Design Matrix.

2. BACKGROUND

2.1 Learning in Relation to Parts of the Game

When designing role-playing games and larps, in contrast to digital games, often the design will not only include what happens as part of the gameplay but also what happens before and after the game. It is more common in certain traditions, for example in bespoke larp design (Koljonen 2019), and, I would argue, in relation to games for education. Games for education can be separated into three different parts: pre-game - what happens before the game, mid-game - what happens during the game, and post-game - what happens after the game. Learning can happen in all these parts. In the pre-game, prep for the game might require a participant to read up on something or practice a skill. The mid-game might require the use and practice of previous knowledge in a new context or reflection upon the causes and

effects of in-game actions during a mid-game break. What is usually highlighted as the most important part is the post-game (Bowman 2014a; Crookall 2014; Geneuss 2021). The post-game is where the processing happens. It can happen in direct relation to the game or over a longer period of time. The processing can be more or less facilitated depending on the content of the game and on what part it focuses. A formal debrief is a facilitated post-game process happening in direct relation to the game in which each participant is granted time to share their experience (Bowman 2014b).

The processing can be divided into three main parts:

- *Emotional processing:* Activities focused on the emotional content of play and the relevant associations that emerged from it.
- *Intellectual processing:* Activities focused on the intellectualization of the game and its relevance to other domains of knowledge and/or experience.
- *Educational processing:* Activities focused on the intellectualization of the game specifically connected to learning objectives and/or curricular goals. (Westborg 2022)

The processing can either be consciously designed or left up to the players depending on the themes of the game, the game tradition from which the designer/organiser comes, and the needs of the group and/or individuals. When planned and designed, each part of the processing can be addressed through many different activities (Brown 2018; Bowman and Hugaas 2019). In a game that includes educational processing, that processing should be done through some kind of formal debrief because, without it, players tend to learn the system but deeper learning tends to get lost, as seen with digital games (Hays 2005; Linderoth 2008; Ke 2009).

3. DEFINITIONS

3.1 Gameplay

Gameplay is often related to interactions, rules, actions, and the system (Salen and Zimmerman 2004; Esposito 2005; Ermi and Mäyrä 2007). It is used here to keep the focus on what is relevant for the players' interactions and agency. Since story and actions are more intertwined in analog role-playing games, gameplay will contain more than just the system or the rules. Here, gameplay will include things like the general plot, characters (if pre-written), groups, relations, meta techniques, and what happens during the playtime such as scenes or more general themes.

In tabletop games, often an already existing system is used and the design work is aimed at creating an adventure, not designing the full system. Gameplay design includes the design of adventures. It should be taken into consideration that different RPG systems give different affordances and can be better or worse for certain types of gameplay experiences.

The difference between gameplay design and runtime design from the Nordic larp discourse (Stenros and Montola 2019) is that runtime design does not include anything before or after the playtime, such as character design.

3.2 Framing

Framing includes what happens pre-, mid- and post-game outside of the gameplay, e.g., workshops, structured breaks between scenes in which players talk out-of-character about what is happening, facili-

tated debriefs after the game. Framing is used here in terms of experience design rather than considering framing as an interpretive lens as used in the work of Goffman (1986) and Fine (1983).

4. EDUCATIONAL ROLE-PLAYING GAME DESIGN MATRIX

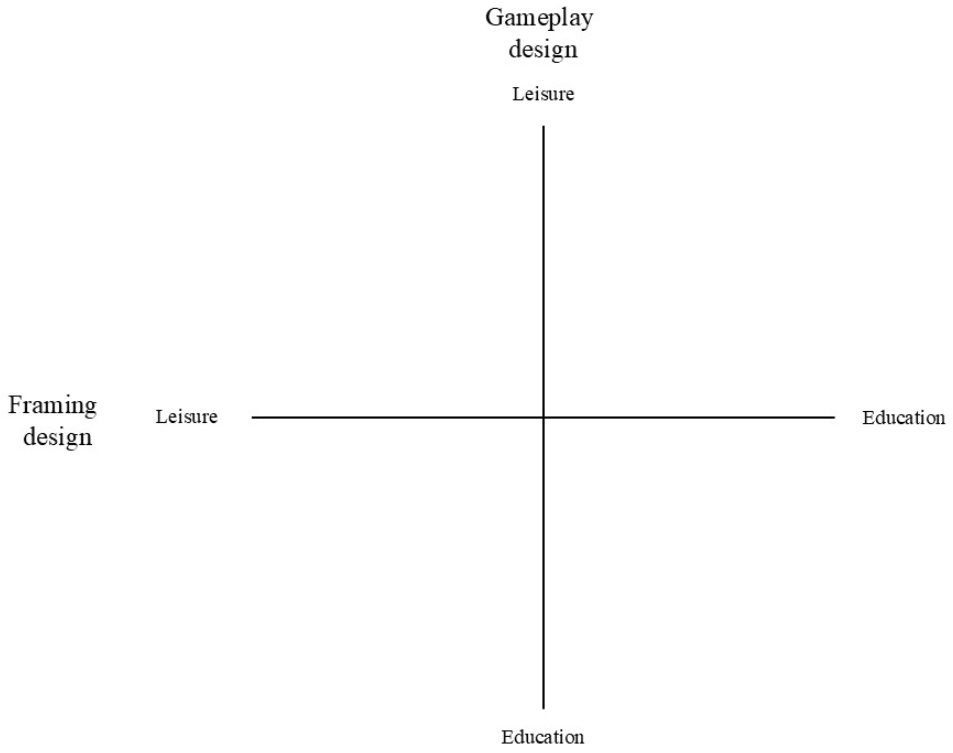
4.1 Approach

Creating a commonly accepted conceptual framework for games is hard since game studies is a multi-disciplinary field and many different terms are used (Klabbers, 2006, p. IV). While others have tried to create frameworks for educational role-playing games based mainly on theoretical work (e.g., Mariais et al. 2012; Cullinan and Genova 2023, this issue), I based the conceptual framework in this article on my experience in the field and how games were discussed by the designers and teachers I met. From that base, I used theory to further develop the framework. Being a practitioner at heart I want to create a theory that is useful and easy to understand for practitioners as well as academics.

4.2 Design vs. Purpose

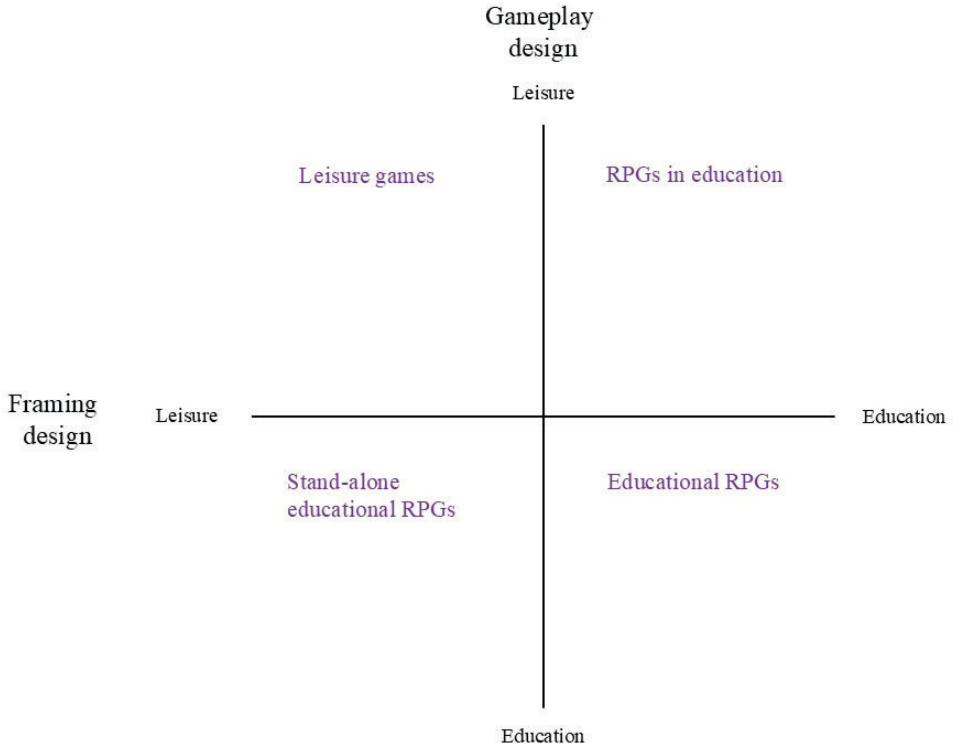
The Educational Role-playing Game Design Matrix shows which part of the game design is designed for which purpose (Westborg 2022). The parts of the game design are the two axes: Gameplay and Framing. Both of them can be designed either for educational purposes, where you have specific learning objectives, or for leisure purposes, where you do not. This process creates four quadrants (see Figure 1).

Figure 1: Axes of gameplay and framing design for leisure and educational purposes.



In each of the four quadrants, we have a different type of game as can be seen in the updated matrix:

Figure 2: The Four Quadrants (clockwise): Leisure games, RPGs in education, standalone educational RPGs, and educational RPGs (including edu-larp).



We will now go through each of the quadrants and what they entail.

4.2.1 Leisure games

The top left quadrant is Leisure games. Here, creators design both the gameplay and the framing for leisure use and not for any specific learning objectives. Consequently, there can be a facilitated debrief that includes emotional processing and intellectual processing, but there will not be any educational processing.

Example:

Designing a game about being stranded on an island when camping. Let us call it *The Island.*

4.2.2 RPGs in Education

The top right quadrant is Role-playing Games in Education. Here, creators either take an existing leisure game or design a new one. Then, framing is designed based on specific learning objectives. This process includes ensuring educational processing is happening in relation to the game.

Example:

Here the leisure game *The Island* can be used as a start. The learning objectives could be about practising cooperation, resource management, or how to set up a tent. The framing a creator designs will be different depending on which of these learning objectives they aim to teach even if the gameplay stays the same.

4.2.3 Stand-alone educational RPGs

The bottom left quadrant features Stand-alone Educational Role-playing Games. The gameplay is designed based on learning objectives. No framing is designed to facilitate the learning objectives and no educational processing is included afterward. The game is designed to inherently teach the learning objectives through play. A lot of the digital educational games for young kids would fit here, for example, math games that are played on a tablet. This type of design can work well for practising physical skills or basic knowledge that needs to be repeated over and over to help it get automated.

Example:

Here creators start out with specific learning objectives and then design the gameplay to help teach those. This type of design could work well if the learning objective was "practising setting up a tent" and the design made sure the players got to practice over and over again in the game. Even if the gameplay design in the end also could be used for teaching something more abstract like cooperation, since there is no educational processing in the framing, it might also do the exact opposite.

4.2.4 Educational RPGs

The bottom right corner is Educational Role-playing Games, which includes edu-larps (Bowman 2014a). Here both the gameplay and the framing are designed based on the learning objectives.

Example:

Starting with the learning objectives, e.g., "working with resource management," creators design the framing and the runtime based on those learning objectives. In the end, the runtime design might also be used for teaching cooperation, but the gameplay would probably look different if "cooperation" was where the creator started and the framing would definitely be different.

When integrating which parts are designed for educational purposes, the matrix now looks like Figure 3.

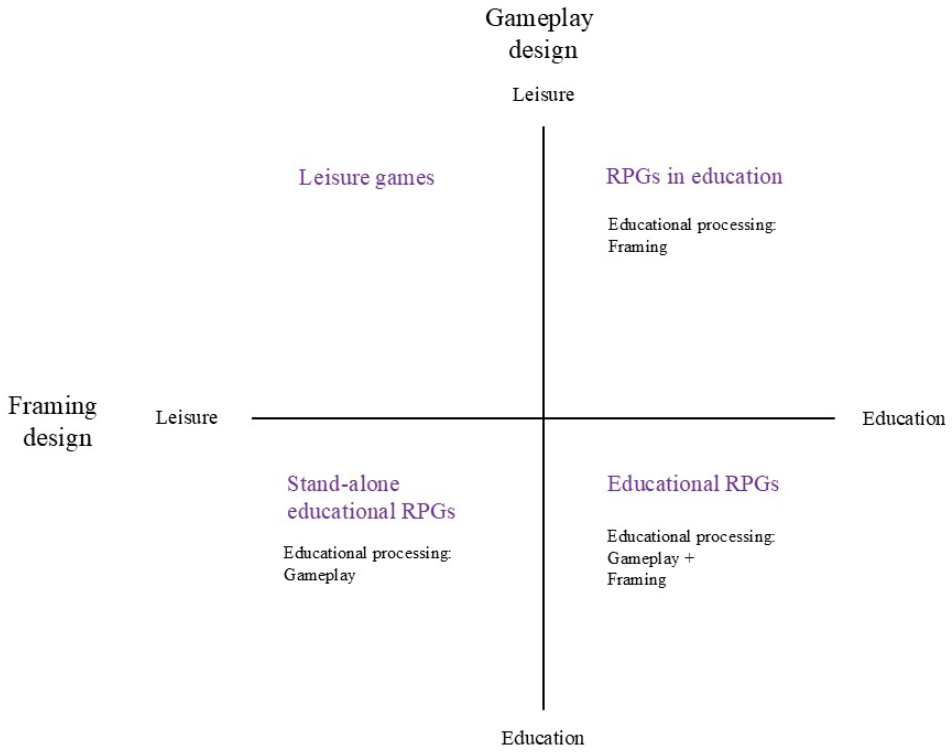
4.3 Design vs. Types of Education

The different quadrants of the matrix can be related to concepts about different types of education such as formal, non-formal and informal.

- *Formal learning* is learning within established educational systems like schools, universities, and training institutions. Specific learning outcomes and a syllabus are established. Usually, some type of assessment is present in which learning outcomes are measured.
- *Non-formal learning* is learning with a specific learning purpose that happens outside of the established formal educational system. In non-formal learning, some kind of organisational framework usually exists, which is often linked to cooperative learning even if organization also can be on an

individual level, e.g., having a book club or learning a language in Duolingo. Non-formal learning often has learning objectives but does not have to follow a formal syllabus. There are usually no assessments, at least not for an external audience.

Figure 3: Types of design needed for each quadrant, including gameplay and/or educational processing.



- *Informal learning* is the type of learning that happens throughout everyday life by just existing and interacting with the environment and other people (La-Belle 1982; Eshach 2007)

For more information, Josephine Baird (2022) has explored these types of learning specifically with regard to role-playing games.

By relating the matrix's different quadrants to formal, non-formal, and informal learning, it is possible to map out which types of education the different designs mainly facilitate.

4.3.1 Leisure games

Facilitate informal learning: No specific learning objectives are established in leisure games, but learning might still happen in all parts of the game. Players might get inspired and research survival techniques pre-game, learn how to set up a tent mid-game, or gain a stronger empathy for people in survival scenarios while processing the emotional experience post-game. However, the gameplay and the framing are not designed for these specific purposes.

4.3.2 Stand-alone Educational RPGs

Facilitate non-formal learning: Since learning objectives are the basis for the design, stand-alone educational RPGs do not facilitate mainly informal learning. These games are also designed to inherently teach those objectives without any type of educational processing afterward. The lack of educational

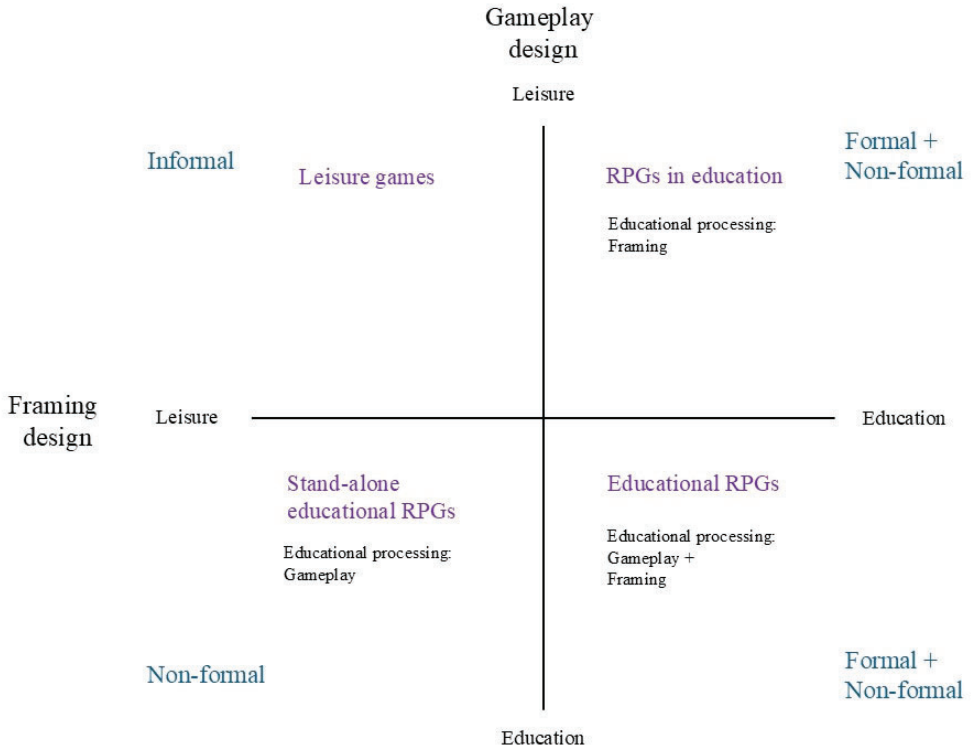
processing in the framing makes these games unlikely to be used in formal education without adding additional framing, although it is possible.

4.3.3 RPGs in Education and Educational RPGs

Facilitate both formal and non-formal learning: Both RPGs in education and educational RPGs have a basis in learning objectives and therefore are not informal. Both have educational processing in the framing, which makes them well-suited for formal learning as well.

The matrix now looks like this:

Figure 4: The types of education suited for each quadrant: informal, non-formal, and formal.



Here we can see that you can learn from any type of role-playing game, but that the different types of games facilitate different types of education.

5. PRACTICAL APPLICATION

When working with games for learning in practice an important part is how much control one can have over the learning process and the learning outcomes. As with all types of teaching, one can never have full control over what students learn, but one can facilitate and steer learning by the design of the process. Both the runtime design and the framing are ways to steer the learning process. If both are aligned towards the same goal, this practice increases the chance for the intended learning to happen and enables a higher control over the learning process.

This assertion does not mean that we should only use educational RPGs for learning. When using any type of educational game in practice, other external factors need to be considered. Factors like location, budget, time, experience, and skill will affect what is doable and efficient.

Designing a game takes time and experience, and a teacher in primary school might have nei-

ther. On the other hand, primary school teachers usually have a lot of experience designing educational processing. Since the post-game part is the most important part for deeper learning, using an existing game and designing the educational process many times can be a better choice for educators than trying to design a game from scratch.

All the different quadrants give different possibilities to control the learning process and they all have their pros and cons in relation to learning.

5.1 Leisure games and control

- *Possibility to control the learning process:* Low
- *Pros:* In leisure games, players can relate the content to their own experiences and discover different takeaways.
- *Cons:* The players might leave the game with totally different takeaways.

5.2 Stand-alone educational RPGs and control

- *Possibility to control the learning process:* Low
- *Pros:* Stand-alone educational RPGs are good for practising basic skills for automation.
- *Cons:* These RPGs are not good for any type of deeper learning, as they feature no way to catch and deal with misunderstandings due to the lack of educational processing.

Table 1: Overview chart of types of design required for each type of game.

		Leisure game	**Stand-alone educational RPGs**	**RPGs in education**	**Educational RPGs**
Gameplay Design	Leisure	x		x	
	Educational		x		x
Framing	Leisure	x	x		
	Educational			x	x
Type of Education	Informal	x			
	Non-formal		x	x	x
	Formal			x	x
Possibility to control the learning process	Low	x	x		
	Medium			x	
	High				x

5.3 RPGs in education and control

- *Possibility to control the learning process:* Medium
- *Pros:* RPGs in education can be used for deeper learning. They are flexible since the same game can be used for different learning goals depending on the framing. They do not require game design skills.
- *Cons:* Parts of the design might work against the intended learning.

5.4 Educational RPGs and control

- *Possibility to control the learning process:* High
- *Pros:* Educational RPGs can be used for deeper learning. They can be designed for specific learning content.
- *Cons:* They are not as flexible as they are designed for one specific thing.

6. LIMITATIONS

The Educational Role-playing Game Design Matrix is a conceptual framework that has not been tested in any quantitative or qualitative way. To test it, the framework would need to be further developed, e.g., with more specific subparts and questions related to each quadrant. I hope to be able to do this work in the future.

The following factors might affect the implementation of an educational role-playing game. While I will briefly discuss them here, these factors are outside of the scope of this paper and not taken into account in this version of the Educational Role-playing Game Design Matrix.

6.1 Setting

All of these games could be run in a school or in a leisure setting. The setting will affect the expectations of the participants and that in itself can affect the game and also the learning.

6.2 Quality

The matrix does not measure the quality of the game from a learning perspective. A stand-alone educational RPG can have a gameplay designed to teach a specific concept and then fail. A leisure game might not be intended to teach anything, but end up having participants leave having learned a very specific thing every time it is run.

6.3 Facilitation and Game Mastering

How a game is run and facilitated will affect the experience the players have and the learning. An experienced facilitator will usually have a higher control over the learning process compared to an inexperienced facilitator no matter what type of game is being run.

7. CONCLUSION

The Educational Role-playing Game Design Matrix is a conceptual framework for designers and educators. By connecting the designable components of a game—framing vs. gameplay—with their intended purposes—leisure vs. educational—it creates four categories. These categories can be used as a language for designers and educators to talk about educational role-playing games. By connecting the four categories to different types of education—formal, informal and non-formal—the matrix can help educational game designers design with intentionality and help educators analyse if a game works for their requirements, or what components need to be addressed for the game to work.

8. ACKNOWLEDGEMENTS

I would like to send out my deepest thanks to:

Sarah Lynne Bowman and the rest of my team -- Doris Rusch, Elektra Diakolambrianou, Josephine Baird, Kaya Toft Thejls, and Kjell Hedgard Hugaas -- in the Transformative Play Initiative at Uppsala University. Without you pushing me and giving me support this paper would never have happened.

The people that I've worked with at Lajvbyrån and all the teachers I met as part of my work there. Together with you, I got the experience that this article is based on.

The people listening to my ideas and discussing theory that helped this matrix take shape: Staffan Björk, Theresa Axner, Gunnar Söderberg and Janusz Maxe.

And last but not least, my partner Lobo Olsson, for always helping out with proofreading, checking my arguments, and anything else I needed in this process and in life.

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