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The Conceptualisation of the E(ducation)-Pizza Game as a Radical Collaborative Thinking and Curriculum and Learning Design Transformation Tool

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Abstract

A cross-disciplinary team of educators and Education Services staff at the University of Leeds collaborated with students to co-create a game which can be used to foster curriculum and learning conversations in playful and liberating ways. Inspired by the concept of food as a connector, the project used pizza and its toppings as a metaphor for a game design which fosters radical collaboration, exploration, and democratic participation, where all voices and perspectives matter. The game is designed to enable small groups to create their own pizza representing their university experience, a programme of study, a module, or a specific pedagogic dimension of one of those experiences, such as assessment, or personal tutoring. This contribution reports on the first three stages of the game design process namely the concept identification, research and defining game mechanics and the human-centred design process and experiences of the project team and what has been learnt so far.

Keywords: Higher Education, Curriculum Design, Design Thinking, Human-Centred Design, Games in Higher Education, Game Design

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1. Introduction

Hooks (1994, p.13) recognises the power of dialogue as 'one of the simplest ways we can begin as teachers, scholars, and critical thinkers to cross boundaries, the barriers that may or may not be erected by race, gender, class, professional standing, and a host of other differences.' In the context of curriculum design, Grabill, Gretter and Skogsberg (2022) also recognise the role practitioner conversations and debates can play to strengthen not only relationships with peers, ideas sharing and problem-solving, but also enhance, transform practice, and the curriculum itself. Cross-disciplinary curriculum conversations and activities with student involvement as partners and co-designers further maximise this potential, and gives students not only a voice to actively help shape the curriculum (Cook-Sather, Bovill and Felten, 2014; Healey and Healey, 2019; Speight, Moreira and Husebo, 2020), but also transforms the educator-student relationship into one where both become co-learners and co-teachers (Freire, 2011), illuminating the value of partnership and democratic values (hooks, 1994).

Openness, criticality, creativity, and collaboration are vital ingredients in this process to bring about change and transformation. While higher education plays an important role in knowledge creation and dissemination, it also has an important societal mission. It helps grow creative and critical citizens, curious lifelong and lifewide learners of tomorrow that are open minded and collaborate with others to not only sustain life on our planet but also to prosper and flourish. However, collaboration is hard in highly competitive environments and cultures such as higher education in which predominantly individual efforts are recognised and rewarded (Pérez and Pasque, 2013). Freire (2007) suggests that curiosity is fundamental to education as it lightens up our minds, and there is also compelling evidence to suggest that play can boost curiosity and free our imagination (Thomas and Seely Brown, 2011), create opportunities to question and challenge (Kessels, 2016), make novel connections (Brown, 2009), experiment (Resnick, 2017), and collaborate (Project Zero, 2016), to open up new possibilities (Bateson and Martin, 2013).

'People often associate play with laughter, fun, and having a good time. It's easy to understand why, as play often involves all these things. But that description misses what's most important about play, and why play is so important to creativity. Creativity doesn't come from laughter and fun: it comes from experimenting, taking risks, and testing the boundaries' (Resnick 2017, p.128).

Evidence suggests that educators in higher education are becoming increasingly braver and are daring to try more playful approaches (James and Nerantzi, 2019), and the e-pizza game puts these claims to the test by stimulating curriculum and learning design conversations in a safe and playful way, aiding the free flow of diverse ideas for consideration. The e-pizza game helps higher education practitioners to break-free from conventions. It enables them to un-think, re-think, and new-think, with regards to redefining the curriculum, at the same time identifying what needs to change, and how to create more stimulating learning experiences which really make a positive difference to our learners.

This article reports on the initial stages of the development of the e-pizza game, and focuses on the human-centred design used, and how it was experienced by the staff and student participants.

2. The e(ducation)-pizza game

2.1. Vision

Our vision is that the e-pizza game will foster curriculum and learning conversations in playful and liberating ways, and lead to fresh ideas and curriculum transformation. Conversations that involve diverse perspective, ideas, and individuals, including educators and students from different disciplines and professional areas, academic developers and learning technologists, and any other stakeholders who would like to contribute, to further enhance and transform a particular learning experience in a specific educational context.

Inspired by the use of food as a connector, familiar pizza bases and pizza toppings are used as metaphors throughout the game. Research suggests that metaphors help us express complex ideas, problems and solutions, discoveries and emotions using visual language, the (un)familiar, the (un)known. Metaphors are unconventional forms of expression that utilise the figurative and the literal in new ways. As Geary (2011, p.13) observes, 'a metaphor is both detour and destination, a digression that gets to the point.' In this case our metaphor is pizza and its toppings which become the figurative that is assigned pedagogical meaning to gain deeper insights into curriculum and learning design as a companion for conversations and collaboration. Such conversations and collaborations should be conducted within existing teams to further widen perspectives and viewpoints (Bene and McNeilly, 2020).

Conversations, debates and explorations throughout the game are encouraged to be both radical and boundary-crossing, involving educators, students, industry and community members, and all those with diverse ideas from a range of backgrounds and orientations, who would not normally be in the same team to routinely problem-solve and generate ideas together. Such approaches can bring freshness and new perspectives (Nerantzi, 2017; Sense to Solve, 2017; Bene and McNeilly, 2020; Timm and Luyet, 2020). The game is explorative in nature and enables democratic participation where all voices and perspectives matter are considered in decision making.

2.2. The team

Ideas become seeds when they are shared, and they then have the potential to grow and flourish in the right conditions. Nielsen and Thurber (2016, p.18) emphasise that "making connections helps you see new options, create unusual solution, and make the far-fetching combinations that lead to original ideas." This is certainly what happened in this case. Whilst the idea was originally conceived in the head of one individual, sharing that idea with others, discussing and debating it, bringing new ideas to the table, boosted its growth and development first into a well-rounded concept, and then into a finished product which has gone on to establish a life of its own with everybody's input and contribution.

In September 2022, the team originally consisted of just two educators. Before the end of the year, the team grew organically as more colleagues came on board and we became six. Then our students joined the team to take us up into double figures. Educators came from different roles within the School of Education, Art and Design, Mechanical Engineering, and the Digital Education Service. The students (undergraduate, postgraduate, doctoral level) from the three Schools joined the team as co-creators and co-makers and consultants. Each individual brought their own experiences, expertise and creativity, which diversified and enriched the team, often in unexpected ways, and cross-disciplinary radical collaboration, requires openness to otherness and curiosity to experiment with novel ideas and connections that can lead to new insights.

2.3. Development strategy

Design thinking, or human-centred design, as it is also known, is interwoven into the fabric of the collaboration of the e-pizza team and characterises the design process for the development of the game. Lockwood (2010, p.5) defines design thinking as 'a human-centred innovation process that emphasises observation, collaboration, fast learning, visualization of ideas, rapid concept prototyping and concurrent business analysis.' This is a useful definition which illustrates well the e-pizza team's way of working on this project, placing the people at the heart of the design itself. How this emerges through the radical collaborative process and openness to ideas. Norman (2002, p.xiv) highlights the importance of such an approach, and suggests that 'most design is intended to be used by people, so the needs and requirements of people ought to be driving much of the work throughout the entire process.' This is an insightful observation, and illustrates that the team members of this project, and their double role of co-designers and end-users may provide unique insights into the design process which informs the group's thinking, decisions making, and the final output.

There are a wide range of games that can be built on chance, mimicry, competition or collaboration, and many are used in a range of educational settings. The e-pizza game enables social explorative play where players collaborate to reach the end of the game. The end of the game is the creation of an e-pizza as a response to an educational brief within a play recipe. There is no right or wrong output.

2.4. People are at the heart

Sykes (2006, p.76) notes that all games, including board games and video games are designed following a five stage process. This includes Stage 1: Concept identification, Stage 2: Research, Stage 3: Defining game mechanics, Stage 4: Balancing game mechanics and Stage 5: Game evaluation. In this article we will focus on Stages 1 and 2, and the first actions for Stage 3.

The overall design approach used to develop the game is user-centered and design-centered as the designers themselves will also be the intended users of the game. The project team, which consists of educators and students, is also the target audience for the game. This makes the design participatory (Sykes, 2006), and human-centered (Lockwood, 2010). Furthermore, the team will invite potential users of the game who are not members of the project team to provide feedback, after playing the prototype of

the game before it is released to the wider educational community. Three examples of human centred design strategies used already within this project are reported within this paper. These are presented in the form of reflective narrative by co-authors:

2.5. Rapid prototyping: Early sandpit to test the idea

Early on in the process, and when the team started growing, we wanted to test our idea with students and enable team members experience the playing of the game first hand. A prototype was created and piloted with our students in November 2022. This included designing basic game rules, a specific inquiry using an open question, and an extensive set of possible pizza toppings. All game resources were created in digital format and printed out. Scissors and glue were provided. Two groups of students from the School of Design and the School of Mechanical Engineering, eight in total, were the very first players of the game. After being familiarised with the task and rules of the game, students played with great autonomy and in collaboration with each other. They discussed, negotiated, and agreed what would go on their pizza and the quantities required. Within 30 minutes they had made a unique pizza in response to the brief, which they then shared with the other group and the facilitators. Team members facilitated the game play, and afterwards reflected on their observations. Students were also invited to share their thoughts. It became clear that the concept of the game was strong and worked. Students not only didn't randomly assign toppings to pedagogical ideas, but they also used some of the qualities or characteristics of specific toppings and linked these meaningfully with pedagogic ideas using toppings as metaphors to tell their story. Such an example is the concept of chillies representing assessment, because they 'add a little spice' to the programme of study. Evidence suggests that students engaged deeply with the game and through play and pizza-making immersed themselves into the inquiry to share their ideas and insights, and also listening actively and considering the thoughts of other group members. Students and facilitators recognised the value of the game, and also noted some changes that could be made. Removing colour from the toppings and creating play recipe cards, together with limiting the number of toppings that could be used, were among the proposed changes. It was also decided that the list of toppings would not be random.

3. Toppings? What toppings? A survey

Whilst the first iteration of the game was played with a common selection of standard pizza toppings, the team wanted to find out what the most popular toppings were within the wider community and be able to later consider these together with specific design considerations to identify which toppings would be designed specifically for the game by the students. A simple online survey instrument was constructed for this purpose that listed 25 possible toppings and an open option for any other possible topping was added (see Appendix 1). The main question was "What would you put on your yummy pizza?" Individuals were invited to select their favourite pizza toppings and submit the form anonymously. No demographic information was kept. The survey was distributed across the organisation and externally using professional networks, communities and social media and remained open for one month. The one hundred and forty six responses and frequencies of toppings collected which are only indicative of this specific sample and can not be generalised across a local or more distributed population. The complete list of toppings can be found in Appendix 2. This also

includes wildcards and confirmed their importance for the game, which then led to the use of a wildcard, as an unidentified topping for the game. It needs to be noted that the toppings are not assigned meaning in the context of learning and teaching practice or curriculum design. They are used as hooks for the players of the game to come up with their own metaphors which will vary each time the game is played.

3.1. Feedback loops: Making the game

Sharing work-in-progress of different elements of the game, such as the development of the digital identity, the toppings itself and any related documentation and play instructions such as the playcard developed and working collaboratively in smaller groups on specific tasks, enabled an open and free flow of sharing that diversified the game and brought ideas from all team members together.

Beyond the internal ongoing team conversations and collaborations, the team also sought to open up the conversation about the game and get some valuable feedback from others outside the team. An early conference poster presentation provided such an opportunity, as well as conversations which followed with members of the Design Thinking Community in our institution. Their responses suggested that they could not only see value in the game, but also had some ideas about how they could use the game themselves. This was very encouraging, and we provided game resources that were available at the time for colleagues to trial and feedback.

4. Conclusion: What we have learnt and what we are taking forward

The increasing pressures and demands on education exerted by the pandemic have had a lasting impact on teaching and teacher-learner relationships. Students and staff are not the same as pre-pandemic and many universities are responding by recognising the need for change to working relationships, processes and the structures of teaching and learning. This case study provides an account of how the e-pizza game project used human-centred design processes to tackle the constraints on change that are familiar to many participants in education, emphasising the value of including diverse voices and perspectives within a collaborative, explorative and pan-participatory playful dialogue. This case study sets out the steps in the game's development, examining its human-centred approach and sharing a reflection on the staff and students' experiences of un-thinking and re-thinking in order to arrive at new thinking about how to make positive change in the organisation and performance of teaching and learning. A few key insights were drawn from the project as a whole. Firstly, the importance of the vision is that curricula change can be facilitated by a playful dialogue between different stakeholders in teaching and learning, liberating participants from conventional constraints. Secondly, the value of the metaphor of pizza toppings as educational ingredients for helping participants makes emotional bridges between problems and potential solutions. Lastly, how the explorative nature of the game is facilitated by the mixing of participants from different spheres of education encouraging the blurring of boundaries and potential radical mixes of perspectives.

The project differs from other playful or gamified curriculum development approaches, eschewing competition, mimicry or luck in favour of friendly collaboration. In the project's metaphorical (and sometimes literal) emphasis on

convivial sharing of food, nourishment and different tastes, pizza is used as a liberating emotional connector to aid the generation of conversational insights through the radical mixing up of ingredients in a manner that blurs boundaries.

Key ingredients of the project's successful mix of ingredients are the rapid prototyping approach, the project's human-centred design strategy and the inclusiveness of the team. The human-centred design development strategy moved stages rapidly through collaboration, visualisation, observation, prototyping and analysis to generate collaborative learning keeping people energised and invested. The focus on invested people not roles, translated into an open invitation to join the team, seeing it expand to include educators, faculty staff and students. This enriched the diversity of perspectives and brought novel insights gained through the various development stages. It is not common for curriculum conversations to occur simultaneously between teachers, learning support staff and students. Additional iterations or testing of the game provided feedback loops and further expanded the community of interest invested in the game. Opening up the game and the conversation to new feedback loops is anticipated to promote the use of the game and thus its future impact. This potential is reinforced through the game's open licence and its flexible design intended to facilitate further adaptation and repurposing. The case study offers inspiration for others investigating ways to strengthen teaching and learning relationships, insights into how the traditional boundaries that hamper curriculum conversations might be overcome, and encouragement for the creative risk taking necessary to reinvigorate education's democratic values through playful curriculum transformation dialogue.

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Appendix 1: Pizza toppings survey

What would you put on your yummy pizza? We would love to hear!
If you like making and/or eating pizza, please let us know what your favourite toppings are. If you must add a topping that is missing, we understand. Please select "other" and share with us what this is. It will only take you a minute or two.

Your responses with help our team of educators and students at the University of Leeds in the making of an e(ducation)-pizza game which we will be available openly and freely in digital format to anybody who would like to use it. The team will select the most popular pizza toppings, you will have helped us identify and make them part of the e-pizza game. The game will become a tool to foster curriculum and learning design conversations using a playful approach. The plan is to have the game ready by the summer 2023 and we will communicate its launch via the university website and social media. We only invite you to share with us your preferred pizza toppings and nothing else in this survey. No personal information is tracked in any way. The survey is fully anonymous and nobody can be identified. We are launching this survey in order to get as many responses as possible so please free to share the link widely if you know others who may want to share their preferred pizza toppings too. Thank you in advance for your help with this.

If for any reason you would like to get in touch with the e-pizza team, please contact Chrissi Nerantzi at c.nerantzi@ leeds.ac.uk. (without the space). Thank you in advance for helping us. The survey will remain open until the 31 January 2023.

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The e-pizza team

1. Please select your favourite pizza toppings

☐ Anchovy
☐ Aubergine
☐ Basil
☐ Beans
☐ Caper
☐ Cheese
☐ Chilli
☐ Corn
☐ Courgette
☐ Egg
☐ Garlic
☐ Ham
☐ Mushroom
☐ Olive
☐ Onion
☐ Oregano
☐ Pepper
☐ Pepperoni
☐ Pineapple
☐ Rocket
☐ Salmon
☐ Spinach
☐ Tofu
☐ Tomato
☐ Tuna

Appendix 2

Complete list of toppings and frequency from survey (in green provided under "other")

Pizza topping	Frequency (n=146)
Cheese	101
Mushroom	77
Olive	67
Tomato	67
Onion	54
Pepperoni	54
Ham	50
Pepper	46
Basil	36
Garlic	31
Oregano	31
Chili	29
Tuna	23
Anchovy	22
Corn	20
Spinach	20
Pineapple	19
Caper	18
Rocket	18
Egg	13
Chicken	9
Aubergine	8
Salmon	8
Courgette	6
Tofu	6
Bacon	3
Jalapeño	3
Beans	2
Chorizo	2
Feta	2
Sausage	2
Smoked Reindeer	1
Aioli	1
Bell Pepper	1
Red Pesto	1
Parma Ham	1
Artichoke Hearts	1
Spicy Beef	1
Halloumi	1
Double Portions (e.g., double cheese)	1
Honey	1
Sweetcorn	1