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Pedagogical Process to Generate Community Learning Through the Participatory Design of a Board Game

Proceso pedagógico para generar aprendizaje comunitario a través del diseño participativo de un juego de mesa

Processo Pedagógico para gerar aprendizagem comunitária por meio do design participativo de um jogo de tabuleiro

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Abstract:
Introduction. Didactic games constitute a powerful tool in both formal and non-formal educational contexts. This study implements a general pedagogical process based on the participative design of a didactic board game to facilitate an educational environment for community learning. **Methods.** Eighteen elderly individuals experiencing homelessness volunteered to participate in the study, all of whom were users of the shelter *Centro Dormitorio Municipal San José* in Costa Rica. The research employed interviews, dialogue circles, mental maps, brainstorm circles, and checkpoints. To ensure the transparency of the study, participants validated all information during evaluation sessions throughout the research process. Data collection techniques entailed a field diary and participant observation, supplemented by data categorization through the creation of matrices and classification based on similarities that were approved and evaluated by participants and later used in the creation of the board game. Participants worked together, along with researchers, to design a board game during weekly meetings held over a 1.6-year period. During this period, a pedagogical process was proposed that consisted of five phases (diagnosis, testing, creation, application and improvement, and dissemination); they are adaptable to diverse educational environments. **Results.** The board game potentialized three socio-emotional abilities identified as needs for this elderly population during the study: self-regulation, self-motivation, and self-knowledge. These elements

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were vital for participant engagement and for establishing significance in the learning experience, adding intention to the design and consciousness to the pedagogical process. **Discussion.** A holistic vision in our approach and methodology was vital for achieving the universal reach expected from the pedagogical process developed in this study. Here, we present a process that can be applied in diverse contexts to achieve the participatory creative design of a didactic board game and create opportunities for community learning.

Keywords: Community learning; diversity; game-based learning; lifelong learning; participatory design.
SDG: SDG 4; Quality education; personalized learning; motivation to learn.

Resumen:
Introducción. Los juegos didácticos son una herramienta poderosa en contextos educativos formales y no formales. Este estudio aplica un proceso pedagógico general basado en el diseño participativo de un juego de mesa didáctico para facilitar un ambiente educacional para el aprendizaje comunitario. **Metodología.** Dieciocho personas adultas mayores en situación de calle voluntariamente participaron en el estudio, todas usuarias del Centro Dormitorio Municipal San José en Costa Rica. Instrumentos como entrevistas, círculos de diálogo, mapas mentales, círculos de lluvia de ideas y listas de cotejo, fueron aplicadas. Toda la información fue validada por las personas participantes durante sesiones en el proceso para asegurar la trasparencia del estudio. El diario de campo y la observación participativa fueron usadas como técnicas de recolección de datos, acompañados de categorización de datos por medio de la creación de matrices y clasificación basada en similitudes aprobadas y evaluadas por las personas participantes y luego usadas en la creación del juego de mesa. Las personas participantes colaboraron con las investigadoras en este estudio para diseñar un juego de mesa durante sesiones semanales por un periodo de 1.6 años. Durante este periodo el proceso pedagógico propuesto consistió en cinco fases (diagnóstico, prueba, creación, aplicación y mejoras e informativo) que son adaptables a espacios educativos diversos. **Resultados.** El juego de mesa potencializó tres habilidades socioemocionales de la población adulta mayor (autorregulación, automotivación y autoconocimiento). Elementos que fueron vitales para el compromiso de los sujetos participantes y para establecer significado a la experiencia de aprendizaje, agregando intencionalidad al diseño y conciencia al proceso pedagógico. **Discusión.** Una visión holística, en nuestro abordaje y metodología, fueron vitales para el alcance universal esperado del proceso desarrollado en este estudio. Aquí se presenta un proceso que puede ser aplicado en contextos diversos para alcanzar el diseño participativo creativo de un juego didáctico y abrir oportunidad para el aprendizaje comunitario.

Palabras claves: Aprendizaje comunitario; diversidad; aprendizaje basado en juegos; aprendizaje continuo; diseño participativo.
ODS: ODS 4; Educación de calidad; aprendizaje personalizado; motivación para aprender.

Resumo:
Introdução. Os jogos didáticos são uma ferramenta poderosa em contextos educacionais formais e não formais. Este estudo aplica um processo pedagógico geral baseado no design participativo de um jogo de tabuleiro educativo para facilitar um ambiente educativo para a aprendizagem comunitária. **Metodologia.** Participaram voluntariamente do estudo 18 idosos moradores de rua,

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todos usuários do Centro Dormitório Municipal San José, na Costa Rica. Foram aplicados instrumentos como entrevistas, rodas de diálogo, mapas mentais, rodas de brainstorming e checklists. Todas as informações foram validadas pelos participantes durante as sessões do processo para garantir a transparência do estudo. Como técnicas de coleta de dados foram utilizados o diário de campo e a observação participante, acompanhada da categorizarão dos dados por meio da criação de matrizes e classificação baseada em semelhanças aprovadas e avaliadas pelos participantes e posteriormente utilizadas na criação do jogo de tabuleiro. Os participantes colaboraram com os pesquisadores neste estudo para projetar um jogo de tabuleiro durante sessões semanais durante um período de 1,6 anos. Nesse período, o processo pedagógico proposto consistiu em cinco fases (diagnóstico, testes, criação, aplicação e melhorias e informação) adaptáveis a diversos espaços educacionais. **Resultados.** O jogo de tabuleiro potencializou três competências socioemocionais da população idosa (auto-regulação, auto-motivação e autoconhecimento). Elementos que foram vitais para o comprometimento dos participantes e para dar sentido à experiência de aprendizagem, agregando intencionalidade ao design e consciência ao processo pedagógico. **Discussão.** Uma visão holística, em nossa abordagem e metodologia, foi vital para o alcance universal esperado do processo desenvolvido neste estudo. Apresentamos aqui um processo que pode ser aplicado em diversos contextos para alcançar o design participativo criativo de um jogo didático e abrir oportunidades para aprendizagem comunitária.

Palavras-chave: Aprendizagem comunitária; diversidade; aprendizagem baseada em jogos; aprendizagem contínua; design participativo.
ODS: ODS 4; Educação de qualidade; aprendizagem personalizada; motivação para aprender.

Introduction

This study has the purpose of offering a general pedagogical path to achieve the participatory design of a didactic boardgame to create the opportunity of community self-construction and deconstruction of knowledge. This is accomplished by potentializing three socio-emotional abilities (self-regulation, self-motivation, and self-knowledge) in the elderly population of Centro Dormitorio Municipal San José; which shelters 102 people each night and provides them with a place to sleep, eat, and receive care (R. Arroyo, personal communication, March 2, 2019).

Co-design notions, like participatory design, come from an interdisciplinary nature for a human-centered approach. Designing with the participants and not for them with the community expertise, knowledge and diversity (Yalman & Guclu Yavuzcan, 2015). This participatory design is a step forward to achieve participatory education, which allows the participants' voices to be heard and promotes educating with the participants and not form them. Requena Bolívar (2018) in connection with the participatory education points out that the design, application and accuracy of actions and plan in education emerge from the active dialogue between the community of participants and researchers.

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Here, by the concept of community, we are not only referring to geographical communities, but also to worldwide diversity. Understanding community as a group of people that have something in common, such as not having a home or being elderly. In this study, the participants aspired to community building, a process that is extremely relevant when it comes to collective transformation (Au et al., 2020).

The pedagogical process presented here is general, non-specific, universal, but more importantly inclusive, core qualities that are highly important in education (Majethiya & Patel, 2015). Hence, our pedagogical process involves constant observation, characterization, personalization, contextualization, and daily life reality as the main qualities involved in a holistic pedagogical approach to necessities under an integral vision of the person involved in formal or non-formal learning spaces.

Human beings never stop learning, the only way to stop is by the natural process of death. Lifelong learning is a process *as old as humanity itself* (Ahmed, 2014). The continuation of our learning through life cannot be disputed and it is not only a physical process, but a psychosocial process deeply rooted in community and culture (Au et al., 2020). Thus, how can educators provide a relevant environment that encourages the lifelong learning process? The pedagogical process presented here aims to be a simple, yet innovative, tool to open welcoming spaces for social interactions in communities leading to communication, experiential-intellectual exchanges, and collective growth.

Games are part of the human routine since birth and most of the actions we perform as adults are based on activities that we used to do while playing when we were children. Pang and Simoncelli-Bulak (2017) highlight the engagement of children in learning while playing. These includes games that educators apply in the process of learning (e.g., learning colors, conversation, catching, precision, balance, and concentration). This branch of games is referred to as *serious games*, defining them as a tool that not only entertains but additionally, has the purpose of education and development of knowledge and skills (Zhonggen, 2019). Therefore, the general pedagogical process proposed here is based on a boardgame, with the purpose of learning through investing on this forgotten simple action that people in any life stage know or remember how to do.

Background

Game design and collective games as an educational approach have been researched. Collaborative learning through game design can be used as a tool to actively engage participants and educators to work together and attain learning results (Stickels & Tranter, 2022). Co-created games are commonly considered as open communication between game designers and a client to collect data and craft a final product (Rodriguez et al., 2021), under the

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same common thread of participation and idea of teamwork. In this study, the game maker(s) or designer(s) does not have to be an expert in the topic but will learn along the participants. In the pedagogical path proposed here, all participants and the researchers are considered designers even without a specific background on game design. In contrast with Rodriguez et al. (2021), in this pedagogical process the communication of ideas and game design is carried out by all participants. This approach allows participants to potentialize three socio-emotional abilities (self-regulation, self-motivation, and self-knowledge) through the action of building a boardgame as a community. For this reason, the developed study values the importance of adaptiveness as a response to participant feedback in a research process that is educational as it is based on human interaction, communication, and participation. This adaptive ability applies to the steps made and the factors developed in the process (e.g., number of participants, social relationships, resources, motivation to participate, connection with the topic chosen, space where research takes place).

Game design has myriad applications, one of them are serious games. In serious games players can subconsciously integrate educational elements during the gaming process (Zhonggen, 2019). However, the participant's proficiency with technology should be considered in the pedagogical process to prevent it from becoming a barrier to the learning process (Pho & Dinscore, 2015). Pho and Dinscore (2015) highlight the importance of getting to know the participants and setting them holistically as a starting line to provide pertinent learning spaces and processes. Akcaoglu and Kale (2016) also mention 1) the need to consider proficiency, 2) the complexities of planning and conceptualizing a game through workshops, and 3) the role that the participants have in problem solving during the process and establishing a meaningful learning environment. Such as the role that designing and creating a boardgame as a community can provide.

Research in game-design has mostly focused on using existing games with modifications to make them functional for their purposes, like through digitalization of games (Jost & Divitini, 2021) and highlighting the participants' expression by creating a digital game that allows players to interact through art, yet using humans instead of a robot during interactions (Devasia et al., 2020). Most studies have focused on digital tools to co-create serious games for learning communities. Yet, few studies have highlighted the potential and flexibility of board games for adults that make use of their life experience as the center of their dynamic with the purpose of promoting social engagement and wellbeing (Niedderer et al., 2022). Research focused on providing a comfortable environment based on the players' preferences for the learning space and safe expression remains underexplored.

To our knowledge, no previous studies have explored this objective with the type of participant community, context, budget and design presented in our study. The objective of our project was to provide the opportunity for community learning and building despite the players' technology proficiency and access to education; while embracing their previous knowledge and

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contextualization, opening channels of communication, and promoting collaborative learning spaces. Here, we present the general framework of a board game through a pedagogical process that could serve as reference for other projects and communities' learning necessities. This study aims to create opportunity for community self-construction and deconstruction of knowledge.

Theoretical Framework or Conceptual References

This project is based on a humanistic vision and it is therefore inevitable not to start from a social perspective. In our pedagogical process, participants are visualized as the epicenter of the research and not the objectives or goals, as usually portrayed, which often blindsides intentions and limits the potential of the project. This view of the process welcomes the participant as someone who feels, lives and is affected by their context, personal history, and experience (Sesento García, 2021).

In pedagogy, respecting the individuality of the participants and their ability to relate with others can bring awareness to different manifestations of thinking (Prats Cuevas et al., 2016). This vision is one of the pillars for the collective and social creation in our pedagogical process, in which pedagogical and andragogical principles paved the way to establish the different steps that where taken. Pedagogical principles are conceptual pillars of this process (Hayath & Kant Gupta, 2022). These principles are bound to the fact that community research related projects should not just be founded in producing theorical knowledge, but in seeking alternative ways to achieve it with a mindful vision around all elements involved. Therefore, pedagogical and andragogical principles were vital in the foundation of this process and its aspiration to achieve a holistic vision of the participants.

Holistic education is a method and a vision for education by contemplating the participants being and not just their rational components (González Garza, 2017). By welcoming the participant as a whole, it is more likely to achieve a pertinent process on reflexive learning that will allow participants to build their own construction of knowledge based on their diversity and the variety of their background experiences. Building the participant's own process can be accomplished by 'constructionism'. It points up the significance in learning while creating, and the process of it, situating it as a necessity (Akcaoglu & Kale, 2016, p. 63). One core characteristic of our pedagogical process is the continued co-design, co-creation, and testing of a didactic game. Hence, constructionism is inherently a part of it. Ortiz Granja (2015) describes it as a dialogic interaction between individual thinking, knowledge, communication, and discussion. All elements previously mentioned as part of our study. These concepts relate to promoting the participants independence through the meaningful learning process of community building. It also relates to ethical elements of the investigation, like autonomy, since it empowers the participants by turning them into protagonists while implementing their potential (Prats

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Cuevas et al., 2016). Social Pedagogy forms part of the process with the parallel accompaniment (researchers-participants) necessary for the project to be efficient and to nourish a positive bond in the group and an active presence in the social environment (Martínez-Otero Pérez, 2021).

Another concept present in our pedagogical process is 'street education', considered by Boevé and Trousselard (2010) as a social and educational dimension that seeks the individual and collective wellness. Street education highlights the space that the participants are from the social spaces that they visit and how they interfere in their life reality. It also considers exclusion and marginalized contexts with the purpose of integral development of the person involved. Our study was performed with participants without housing; therefore, founding the conceptual grounds of our pedagogical process pertinently was vital.

Lastly, finding a real understanding of the participants considering who they are is an undeniable step to take. The elderly population is the protagonist in this process, and reminds us why Ahmed (2014) said that lifelong learning can nourish by giving a meaningful view to life; future, present, and past.

Methodology

The work presented here is qualitative in nature and the main research instrument applied was the dialogue circle, along with an interview, checkpoints, a field diary, and brainstorming sessions. Workshops were offered to all elderly users of Centro Dormitorio Municipal San José (CDMSJ) and the only selection requirement to be part of the study was to be interested and to volunteer to participate. The CDMSJ is an institution led by a non-governmental organization with the purpose of providing shelter and care to people without housing. The study took place for 1.6 years in which the authors participated first as volunteers at CDMSJ for six months and later as researchers in this study (Torres-Cruz & Vargas Agüero, 2021).

The volunteer group was composed of 18 participants, users of the CDMSJ, ages 65-89, that participated in the collective development of the game during weekly sessions between February 2019 to February 2020. The participants had been part of the institution anywhere from 9 months to 10 years prior to this study. Volunteer participants had the incentive of having the opportunity to access the facilities earlier than the general public, since the CDMSJ usually opened at 6:00 PM. Joining the project allowed participants to access the CDMSJ at 4:00 PM. Participants were elderly people from diverse career paths (e.g., artists, drivers, lawyers, university professors, secretaries) with or without formal educational backgrounds. Seventeen participants identified as man and one as a woman.

Use of a field diary. The field diary was a crucial instrument for this pedagogical process as the main way to approach participants was participatory observation, which represented the path to creating a bond and better understanding of the context and life reality. This type

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of diary serves as a source of transformation and expansion of the research practices in the process (Ospina, 2016). The descriptive notes taken include the agenda for weekly meetings with participants, personal communications that where shared, decisions taken, ideas, and events that emerged that needed to be addressed.

An individual semi-structured interview was also applied on the first month of interaction with the participants, as it allows flexibility to ask additional questions to dive deeper into a topic (Mannan, 2020). The motive of the interview was to set an overview of previous knowledge about the socio-emotional area of the participants and their life story. We used other necessary tools to promote the expression of the information and deeper analysis, such as dialogue circles and brainstorming sessions. Where everyone a chance to share thoughts and provide moments of collective construction and deconstruction of knowledge with the promotion of a respectful and understanding safe space. It also made possible for the participants to build a real community and empowered them to even establish an association of the elders in the process.

Game development. Our pedagogical process consisted of five phases:

1) Diagnostic phase. Participant observation started in this phase to obtain basic information needed to establish a research objective and plan. Participant observation allowed the researchers to create a strong confidence bond with the participants. The first step in this phase was *comprehending*. The best way to comprehend and know what is needed is by living it, being involved in the social practices by situating ourselves in a horizontal relationship with the participant and promoting community learning coming from within the community itself and not from a third-party external to the reality of their lives, this was a path that we used with the intention of developing respect and honesty as investigators.

In this phase, interviews were used as a diagnostic tool to identify the interests, abilities, and pedagogical necessities of the users. Interviews provided a more real view of the space under research and opened the door to confidence, trust, horizontality and understanding. During initial interviews, participants were asked to respond to the following set of prompts:

- An experience in their life in which they got to know themselves.
- An experience that made them self-motivate.
- An experience that involved self-regulation.
- Obstacles that block their happiness.
- Their goals.
- Share an overview of their life story.

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Six open questions were asked focused on sharing anecdotes. The interviews were conducted individually with three participants at first. Once the instrument was validated and approved, it was applied with all participants. The interview allowed to clarify the steps of action to take in order to pertinently analyze data and collective construction of the game.

The second step in this phase was *relating*. There are many tools that can be applied when we are making a diagnosis about a community. Here, two tools were used weekly during the meetings organized with the participants at CDMSJ, mental maps and brainstorming. These tools are highly useful if we as participants of the context during observation are creative and integrate key information to make the tools more relatable. When this pedagogical process was applied in the context of the CDMSJ, one of the ways that brainstorming sessions were modified was by calling the activity *the diversity blanket*. This referenced the fact that each participant was given a blanket to use when spending the night at the shelter and it was a big deal to them since all of them had a favorite blanket and hated when it was given to someone else at the shelter. During brainstorming sessions each participant received a piece of paper that represented a part of the blanket to write personal information about each of them. When these *blanket pieces* were placed together they made a whole blanket, referred to as the diversity blanket. This activity allowed the researchers to obtain more information about the participants and provided a space of community connection, sharing, and learning, while being respectful about the amount of information they wanted to offer.

An important element of this phase was *respect*. All participants signed a consent form to participate in this study. This not only helped us comply legally and ethically, but also helped nourish the investigator-participant relationship by reassuring the privacy of their information and image and the responsible use of it. A general meeting was held to assure that everyone understood the document and to provide support to those that did not know how to read or write. All participants were offered the option to sign with their fingerprint, if needed.

The last step in this phase was to *set a foundation*. It was relevant to educate ourselves as researchers and check for antecedents from other studies that were related to our objectives.

2) Testing phase. This phase consisted of trying and experimenting with different types of existing board games (e.g. Dominoes, UNO, Jenga, playing cards, Candyland, Clue, Pictionary) and associated materials to identify preferences in the participants. In this phase, participant observation was at is brightest because it allowed us to collect all the information needed to prepare a proposal to initiate game design and construction with the participants.

3) Creation phase. An important instrument applied during this phase was the interview. First, a graphic designer was consulted to help with the aesthetics of the game. This provided an initial overview of what could be included in the first prototype of the game, including all aspects observed during the testing phase. The participants were interviewed next, as they were co-designers of the game along with the researchers. The game was made for them and by them.

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The first step taken during the creation phase was to *chat*. We held conversations with the participants to know more about their backgrounds based on the type of learning space that we wanted to promote with the design, creation, and application of the game. This helped identify common aspects between participants that could be used as a way of bonding and different ideas were offered that could be considered as elements to include in the design of the game. Brainstorms were also used to identify other details like the colors to use in the game and places that could be illustrated on the game board.

The second step was based on *organizing*. We collected all the information expressed by the participants during conversations and transcribed it. We then classified it through research matrixes. This was followed by the *analyzing* step. This was the moment to value the information collected and select the different elements that shaped the didactic game. The way to analyze the information consisted of finding common elements in the research matrixes that connected the participants and bringing these to the table for the dialogue circles.

The following step was *planning*. Here we finally got to decide together (participants and researchers) what was going to be done and what elements were going to be used for the game, leading us to the *designing* step. This was a moment of creativity, participation, collective thinking, and action on the foundation of the participants' own learning processes. For these two steps, it was important to retake the brainstorming and discussion circles during the weekly meetings to keep the flow of that horizontality that we aimed to promote during the study and as part of the participant observation.

The last step was *creating*. As a collaborative creation, both researchers and participants provided input into the didactive game developed. During this step, we observed the bond established during the last phases, which aided in setting a comfortable environment for the learning process. Here is where we finally transformed our ideas into reality by preparing each element of the game.

4) Application and improvement phase. This phase was based on weekly trials of the game using discussion circles to analyze gradual changes, improvements and additions that were made to the didactive game. A checkpoint was applied to evaluate progress and determine work that still needed to be done besides all the comments and feedback provided by the participants as areas of improvement.

Checkpoints were applied at four different times during the 1.6 years of the study to assess progress. There were five criteria from Ziemendorff and Krause (2003) applied during checkpoints: i) attraction, the appreciation that the participants felt for the game; ii) comprehension, when the participants played the game and understood its purpose; iii) compatibility, expressed as how much the game related to the participants context and real life; iv) acceptance, if the game was well received by the participants; and v) call to action, if the participants were incentivized to complete actions during the game. For each checkpoint, the results of the instrument were shared with the participants and their perspective was implemented as part of the evaluation.

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We applied an evaluation that was appropriate for the game that we were creating. Ziemendorff and Krause (2003) offered good criteria for our specific game in this case. However, appropriate criteria should be determined when applying this pedagogical process in different contexts/purposes.

5) *Informative phase.* Our study was concluded with a social event to promote the game created and share with other users of CDMSJ. This phase could also have a different public and with that promote the game to be implemented in other spaces and for other purposes. The event may be an educational workshop about the didactic game created collectively and the use of the game itself or about the steps of game development. An instructional guide was also created for the game. In this way new players could use the didactic game at any moment without the necessity of having the support of one of the primary game makers.

Results

The study in which this proposed pedagogical process was applied was based on participative design, construction, and application of a didactic boardgame to potentialize three socio-emotional abilities in the elderly population of the Centro Dormitorio Municipal San José. These socio-emotional abilities (self-regulation, self-motivation, and self-knowledge) were pinpointed after analyzing participatory observations in CDMSJ and the responses from the initial interviews with participants. This process intended to provide a learning space environment in a didactive way and allowed the community itself to be the one in charge of their own deconstruction and construction of knowledge based on their combined experiences. The purpose of our study was to empower the community in their knowledge and previous life experiences, while providing a space and a tool to continue practicing and learning more from other voices and experiences that might connect with their own. This game consisted of several components: board, chips, action cards, power cards, avatars, and additional elements (dices, whiteboard, cue stick, playdough, and rules). The additional elements complement the main elements that we called the 'skeleton' to create a board game of any topic for community learning, through the application of the generic model developed during our study.

During the diagnostic phase interviews conducted discovered common interests, abilities, and skills between the participants through classification of data (e.g., artistic work, music, poetry, riddle solution, storytelling). Several elements of the game were inspired by these commonalities *(e.g.*, the board, the quality chips, the action cards, and the power cards) which compose the 'skeleton', plus extras like the playdough and whiteboard. Collected information was organized based on common interest or expression topics from the participants. Through this organization five categories arose: voice, experience, creativity, work, and fight. These categories were a result of the self-knowledge achieved by the participants at that point during the design process through the dialogue circles. These categories inspired the creation of 'quality chips' that were used as an incentive in the game to be given by the players, an idea that they shared as a source of self-motivation to keep playing, communicating, learning, and reflecting. It was also determined that there would be two winners, one for quantity of chips received and another one for completion of actions on the safe spaces that are on the gameboard, to encourage self-motivation and to keep playing even if somebody else had won first.

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Another element of the game came from brainstorming sessions, the selection of places that make up the board. The board was designed to look like a city seen from above. This city had the locations that represented safe places or obstacles in the community. With the participants, six safe places were chosen: *Correos de Costa Rica* (postal service), *Parque La Merced* (city park), *Chepe se baña* (shower bus service), *Ejército de Salvación* (Salvation Army), *Obras del Espíritu Santo* (Works of the Holy Spirit Association) and *Centro Dormitorio* (homeless shelter). *Correos de Costa Rica and Parque La Merced* were places where the participants in our study without home could ask others for money and with that sustain themselves. *Chepe se baña, Ejército de Salvación, Obras del Espíritu Santo* and *Centro Dormitorio,* are institutions that offer support to people without home by providing them with a place to sleep, meals, coffee in the afternoons, hygiene products and showers, and odontology and social services. These are the safe spaces that participants selected together out of a list of 20+ potential different significant spaces and were a result of the knowledge that they built as a community and how much they related to each other.

The board contained four additional spaces that were traps or unsafe spaces: *the jail, the graveyard, El Chapuí* (mental health institution) *and El Rejuego* (black market). The jail had a double purpose since it could signify a safe space to try to get in if they did not have where to stay one night or it could also represent the loss of freedom. *El Chapuí* is a psychotherapeutic center that some participants had been institutionalized at and never wanted to return. *El rejuego* is a black-market in San José and its location was only known by the participants and other people without housing in the area and was a place where they could sell things to survive. However, this black market also represented a lot of danger because it is illegal, and they refused to be seen there by some dangerous mobs. *The graveyard* represented everyone's real life trap, death, and is additional proof of their community as all participants expressed the same feeling towards this space.

Action cards were also derived from the interviews. Seven categories of common interests and abilities were selected: sing, poetry, riddle, draw, mold, act, and situation. As an outcome of their self-knowledge process and community building process since they all enjoyed sharing these activities. During the game, when a player reached a safe place, they would get the chance to complete an action and could win quality chips from their peers if they felt identified with what was expressed in that action. It is important to mention that these actions needed to be related to the intention of the game, to potentiate self-motivation, self-knowledge, and self-regulation. Therefore, actions had to be connected to these topics.

With the same voice of the participants through the interview, the power cards were created. The cards contained a *superpower* or *ability* that the participants wished to have in real life as an advantage to improve their life situation. Every card was part of the avatar that they each created and chose to play with and that represented them on the board game. The avatars will be discussed on the creation phase.

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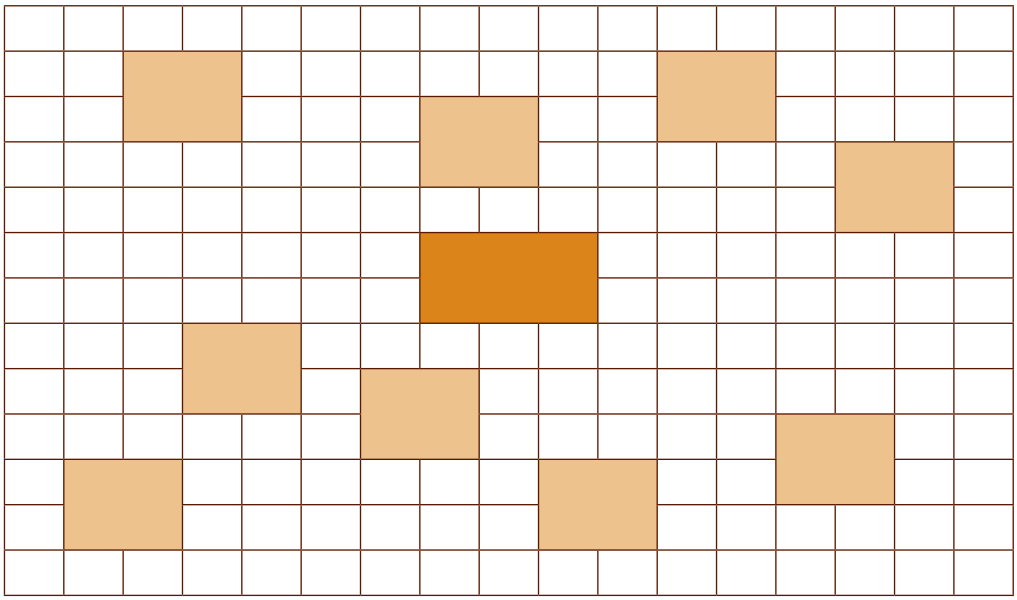
During the creation phase, the first element designed was the board, which contained the ten places previously mentioned. This element was modified three times during the application and improvement phase. These modifications were made based on the five criteria by Zimendorff and Krause (2003).

The design of the board game had a basic model (Figure 1) that was adapted with elements incorporated by the participants. Places on the board can be replaced with different ones based on the community to which we want to apply the game based on new didactive and research intentions. The three squares in the middle of the board with a darker color are where the action cards are placed, and the light-colored squares are where the safe and unsafe places were located.

Figure 1: Generic design for boardgame



Note: The three spaces in the middle (darker grey) are where action cards are placed. The other spaces in lighter grey represent where the safe places are located. Own work.

The basic design used in this board game can be adapted to different contexts and populations, reflecting the life experiences of those portrayed in it. On this board, players had to move their avatar, visit each safe place (14x20 cm images) and perform an action indicated by the cards (10x6 cm) to win the game. The blank spaces (10x7 cm) are the amounts of steps that each avatar can take depending on the dices' indication. The board (50x90 cm) was printed on vinyl canvas to ensure its durability and so that it could be placed on the floor and participants could sit or stand around it.

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The avatar was another element created for the game. Each participant designed it based on their own personality, symbolism, and representation through the didactic board game. Avatars were handmade by participants using clay and a wooden base. The avatars and superpower cards were the most concrete element of the process of each participant. They were the symbolic image of their being and the self-identified power that they either had or wished they had. This element design was the most complex and in the one we could see all the three socioemotional abilities applied along with a nourishing communicative, collaborative, and healthy social environment.

The information collected through the creation of the avatars made us consider the activity as part of the methodological instruments of the study. During the building of the avatars more information was added to the one collected during interviews.

The way to play the game resulted in a simple method: 1) a participation order was defined by all players, 2) the player rolled the dice with a number, 3) the player moved their avatar to a safe place, if possible, with the number given by the dice, 4) in the safe place the participant then rolled the "ability" dice that defined which card to take, 5) the player performed the action stated on the card based on the socioemocional ability also stated by the card, 6) with peers approval, the player could receive an incentive. The player with most incentives would win and also the first one to go through all the safe places on the board.

Discussion

It is known that testing of the core game mechanics usually happens later in the production cycle and in many cases this ends up leading to disappointing results (Fullerton, 2019). To prevent this, we started testing the game from the very beginning. During the design and creation phases of our pedagogical process, prototypes were tested with and without modifications at each of the weekly sessions with the participants. In this way the communication, discussion, and analysis channels stayed open during co-creation.

The cooperative design and creation of the game among members of the community not only helped achieve our goal but also opened a new channel to collect data through creative expression of the participants. As a result of the interviews applied, a common thread was determined between participants, the need to be able to pass on their wisdom to others. Creativity and learning are deeply involved in social practices (Gajardo-Espinoza & Campos-Cancino, 2022), and this motivated us as researchers to follow procedural steps that allowed participants to be creative, adaptable, and social during the whole research process.

Having a social view not only helped the foundation of the pillars of the pedagogical process but also shaped the development of it (Martínez-Otero Pérez, 2021). As researchers, something we kept present since the beginning of this study was to partake with participants

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in the process to get into the practices of what we study and situate ourselves amongst the people and discourses (Aagaard & Matthiesen, 2016). Looking at this pedagogical process from a broad perspective reflects how all elements were related under a holistic vision (González Garza, 2017). The participants (including researchers), their real lives, their contexts, and the objectives and goals to be accomplished were all connected and had a purpose and role to play in the game that was developed.

The qualitative nature of the study allowed the incorporation of categories/elements that were involved in the positive result of the didactic game and created a connection with a humanistic approach. The reach of the scope of our actions as researchers was on our conscious level (Urbano Gómez, 2016). We find this consciousness in the 'skeleton' of the game and it requires profound analysis and motivation to collectively take decisions on the different categories to include in the didactive game created for community learning.

Three important results emerged form this qualitative study, related to: i) behavior and opinion, ii) attitudes, stereotypes, and perception, and iii) profound motivation. First, when we learn in community it is important to feel identified with the purpose of being together. During the study, the participants had personal behaviors and opinions that they wanted heard and taken into consideration. By providing visibility to these traits, the game was shaped around the real identity of the group. Applying meaningful information provided by the participants allowed us to intentionally reflect throughout the construction of the game. In this way, the three socioemotional skills (self-regulation, self-motivation, and self-knowledge) were promoted while playing the game and during the entire process of developing the board game. This leads us to the second result, the attitude of each participant around the stereotypes and perceptions previously acquired by each of them allowed the self awareness of the transformation that the group experienced. A moment in which this aspect was in full effect was during the creation of the avatars. In those sessions, the participants had the opportunity to share their life stories and the important events that made them who they are. This activity served as a catalyst moment for all. It allowed the participants to bond with the purpose of the study and finally identify themselves as a community. It changed the preconceived ideas that they had of each other and as a collective. The third result identified was the profound motivation each participant had to be part of the study and the community. This element was noticeable in the ideas they had to facilitate not only their access when using the game, but the collective ability to be independent when playing. The participants identified challenges and their respective solutions while working together. For example, they created an adaptive cue stick that allowed them to move and reach all elements placed on the board. This was also the reason for the board game being played on the floor. It was the participants' solution to making it accessible to everyone, having access to all the elements of the board game at once and being able to see each other while playing. Assuring accessibility to the game was not only the researchers' responsibility and by including the participants ideas, the game was ultimately designed for them and by them.

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Conclusions

The flexibility and flow of applying this pedagogical process do not come from blindly following the different steps we presented here. It highly involves the human element and therefore, diversity. The holistic vision of the study was a determinant concept to achieve the adaptiveness of its collective nature. Making a game does not have to be developed by a professional game maker for it to be functional, and community and individual empowerment can be developed in the same way.

In the pedagogical process of this study, participants with different backgrounds volunteered to put all their will into a tool that would benefit building their community and potentialize their self. Community construction and deconstruction of knowledge in a pedagogical process is not something that can just be given but should instead be offered. The steps listed in this study are intended to invite participants work together in transforming their community and themselves based on their own needs (e.g. emotional, psychological, spiritual). However, this was only possible because the participants themselves decided to join the pedagogical process and actively engage in participation. This decision resulted in the accomplishment of our research objective, to potentialize the socioemocional abilities of self-regulation, self-motivation, and self knowledge. Creating this space that was fully organized and ready to act independently in the CDMSJ would not have been possible without the constant efforts and the knowledge acquired during the socialization, the ideas from participants to implement in the game, as well as personal and collective discoveries of the participant group.

When learning in community, the empowerment of self-regulation, self-motivation, and self-knowledge can be achieved through decision-making attributed to constant interaction and dialogue. At the beginning of this study most participants did not get along with each other, but participatory education allowed them to connect with each other and with themselves. Hearing about each other's life experiences and understanding each other also helped them understand themselves.

Contemplating the participants as a whole and not only their rational components, welcomed personalization, pertinence and sense of belonging to the collaborative spaces. Having a holistic, ethic, humanistic, inclusive, and respectful view can significantly impact the pedagogical process. This sense of action should go hand in hand with appropriate research instruments that prioritize the participants knowledge, critical thinking, and contributions. Life experience is a powerful starting point when collaborating with elderly population. It can enable building relationships and sense of community. Empowering others to believe in themselves can lead to autonomy and self-expression. Attributing value to one's wisdom is a voyage that leads to unexpected results, such as this study that provided a board game that reflects everyone's self in the CDMSJ community.

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When carrying out research, investigators often find a wide range of diverse situations in terms of location, participants, methods, and obstacles. We have provided a general, non-specific, universal, and inclusive pedagogical approach that serves as a reference for others to foster collaboration between academia and the communities we meet and serve. In the path of finding an effective process to implement on a specific study, one must be conscious of one's actions. It is important to ask ourselves as researchers the type of relationship that we want to foster with the participants and how we want to be involved in the process. If the goal is to be fully immersed in the research experience along with the participants, the pedagogical process proposed here is a good one to consider.

Authors' Contributions

The authors declare they have contributed in the following roles: K. Z. T. C. contributed to the writing of the article; the management of the research process; obtaining funds, resources and technological support and the development of the research. F. V. A contributed to writing of the article; obtaining funds, resources and technological support and the development of the research.

Data and Supplementary Material

Este artículo tiene disponible material complementario: https://repositorio.una.ac.cr/handle/11056/23877

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