

IMPACT OF CHESS TRAINING ON PRISON INMATES: PILOTING EXPERIENCE IN SELECTED EUROPEAN COUNTRIES

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Abstract. *The role of chess as an educational and rehabilitative tool has gained traction in recent years, particularly in correctional facilities and therapeutic communities. The aim of this research is to analyse the impact of chess training on prison inmates in selected European countries. The methodology integrates document analysis, participant observation from facilitators and programme evaluations to provide a comprehensive understanding of the impact of chess on rehabilitation efforts. The method of data analysis is content analysis, also known as the interpretation method. Interpretation techniques imply structuring and summarising, comparison and synthesis. The theoretical analysis allows determining a classification of impact's areas. This theoretical finding can help other researchers understand the significance of their scientific or research contribution. Our analysis of piloting experience of chess play in prisons in the selected European countries allows concluding that the chess training was effective. In general, each individual's life is important for society. It is particularly beneficial, if a prison inmate is socially included in the society. Our empirical study is limited by the participation of only three European countries in the chess training for prison inmates. If more countries take part in the study, the other results could be attained.*

Keywords: *associative thinking of chess pieces, chess game, cognitive training methods, impact classification, inclusion, prison inmates, training.*

To cite this article:

Ahrens, A., Montero, J.A., Barbeito, R., Trasciatti, M., Falkane, D., Zascerinska, J., & Zascerinskis, M. (2025). Impact of Chess Training on Prison Inmates: Piloting Experience in Selected European Countries. *Education. Innovation. Diversity*, 1(10), 21–35. <https://doi.org/10.17770/eid2025.1.8380>

Introduction

The role of chess as an educational and rehabilitative tool has gained traction in recent years, particularly in correctional facilities and therapeutic communities. Individuals belonging to correctional facilities and therapeutic communities often experience mobility limitations (Ahrens et.al., 2024). The social and therapeutical use of chess play opens an array of possibilities for the age-old practise of this game (Barbeito, 2021). Chess fosters strategic thinking, patience, and problem-solving skills—attributes that are crucial for individuals preparing to reintegrate into society, e.g. addicted persons (Tardio, 2021), the elderly (Jiménez, 2021), and homeless (Montero, 2021a).

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Literature Review

Barbeito’s theoretical model of social reintegration through structured activities is used to analyse and classify the effectiveness of these programmes (Barbeito, 2021). Special attention is given to the duration and sustainability of these initiatives, as their long-standing presence indicates a level of success and institutional acceptance.

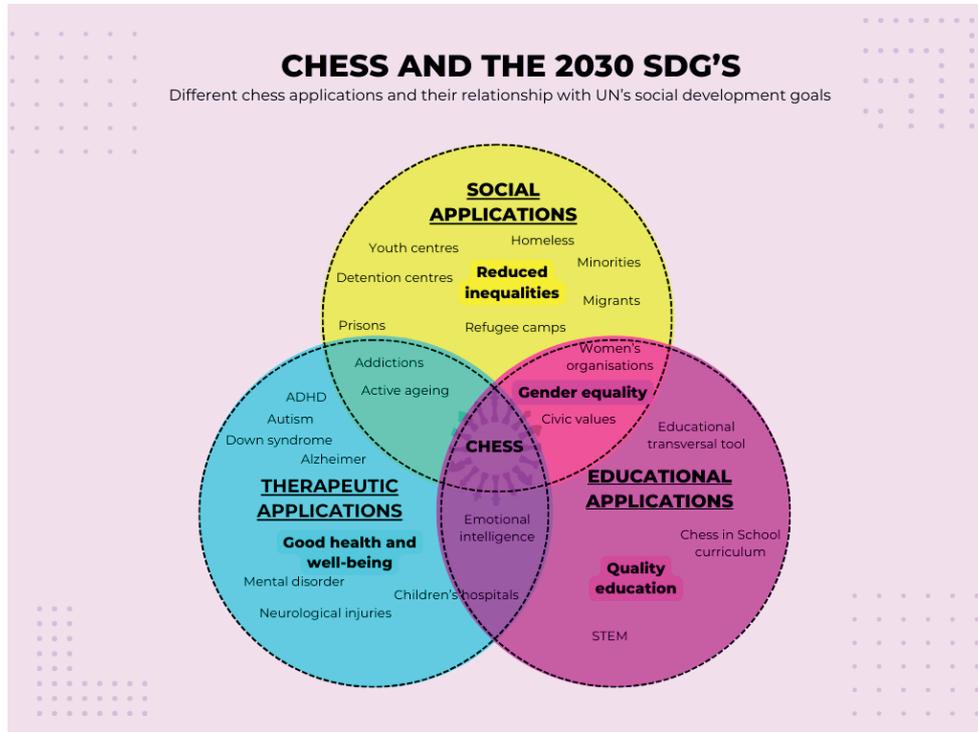


Figure 1 Barbeito’s theoretical model of social reintegration through structured activities (Barbeito, 2021)

The resources needed to excel in chess can be divided into two main categories, identified by studies conducted since the beginning of the last century: innate and acquired. The innate can be developed and enhanced through targeted training. Acquired, on the other hand, is instilled mainly through formal education and field experience. Both innate abilities and acquired resources, or, in other words, skills require constant and systematic commitment to achieve levels of excellence as shown in Table 1.

Table 1 A description of Innate Abilities and Acquired Skills (by the authors)

Inborn chess activities	Achievable chess activities
1) Self-control. 2) Ability to reflect on arguments. 3) Intense mental activity. 4) Obedience of the will. 5) Correct distribution of attention. 6) Perception of position dynamics. 7) Creative combinatorial skills.	1) Good health condition. 2) The perception of data transmitted by our senses. 3) Steady nerves. 4) Objective thought process. 5) Powerful memory. 6) High mental level. 7) Self-confidence. 8) Controlling emotional impulses. 9) Feeling for the position (a combination of thought and emotion).

Source: the authors.

The importance of expert guidance is crucial. A specialised trainer can help the trainee identify his or her specific resources and develop personalised strategies to improve them. Importantly, these resources are typically related to the game of chess and do not transfer directly to other disciplines. For example, an exceptional memory for chess positions is a highly specialised skill. As a result, chess training may influence individuals' innate abilities and acquired skills. The influence on the decisions (regardless of outcome) that shape peoples' lives, community, governance, the environment, and elsewhere (Federation for the Humanities and Social Sciences, 2014, p. 9) is defined as impact. Impact can refer to the individuals' internal and external perspectives (Zascerinska, Aleksejeva, Zascerinskis, Gukovica, & Aleksejeva, (2020). Table 2 shows impact classification in light of the individuals' internal and external perspectives (Ahrens, Zascerinska, Bikova, Aleksejeva, Zascerinskis, & Gukovica, 2023a; Ahrens, Zascerinska, Bikova, Aleksejeva, Zascerinskis, & Gukovica, 2023b; Ahrens, Zascerinska, Bikova, & Zascerinskis, 2024).

Table 2 Impact Classification (by the authors)

Phenomenon	Impact	
	Internal Perspective	External Perspective
Perspective	Individual	Social
Life domains	Individual working life Individual beliefs Learning, cognition Individual health conditions Individual finance	Economic Political Education Health system Financial
Level	Individual	Local, Regional, National, European, Global
Emotions	Positive	Negative

Source: the authors.

Existing research underscores the cognitive (internal) and social (external) benefits of chess across various settings, including cognitive rehabilitation and addiction recovery. FIDE's (the International Chess Federation or World Chess Federation, commonly referred to by its French acronym FIDE - Fédération Internationale des Échecs) cooperation with social programmes has further validated chess as a transformative tool for marginalised groups, including prison inmates. Additionally, studies on the success of programmes such as "Our Chess Reintegrates" and "Cognitive Rehabilitation in Black and White" reinforce the applicability of chess in both correctional and therapeutic environments. Notably, the programmes analysed in this study have been running in Spain for over a decade, providing a wealth of longitudinal data supporting their efficacy. This can also be proven by the involvement of Club Magic in several scientific papers like Gerhardt et al. (2022) or Fuentes-García & Villafaina (2024).

Methodology

The present study is enabled by the research question: What is the impact of chess training on prison inmates in selected European countries? It should be noted that the European countries, namely Italy, Latvia, and Spain, have been chosen due to their involvement in the chess training implemented in several prisons in these countries within the Erasmus+ project "Including Chess as a Re-education Up-Skilling Tool" (ICARUS) (<https://www.projecticarus.eu>). Also, several other initiatives have been explored by Club Magic from Spain and other organisations (FIDE, 2019). Additionally, the present study

investigates three key chess-based rehabilitation programmes implemented in Spain: "Our Chess Reintegrates" (Badajoz and Cáceres prisons, running since 2009), "Keep a Cool Head" (Burgos prison, started in 2021), and "Cognitive Rehabilitation in Black and White" (Therapeutic Communities in Extremadura, operational since 2010).

The study aims to assess the effectiveness of chess in improving cognitive functions, decision-making abilities, and social behaviour among inmates and individuals recovering from addiction, highlighting their long-term sustainability.

This study employs a qualitative research design based on literature review and best practice case studies. In Italy, the data were collected at a detention center, and, in Latvia, at Cesis Correctional Facility for Juveniles. The data for Spain are drawn from Spanish correctional institutions and therapeutic communities where chess-based interventions have been implemented. The primary sources include documentation of the "Our Chess Reintegrates" programme in Badajoz and Cáceres prisons, "Keep a Cool Head" in Burgos prison, and "Cognitive Rehabilitation in Black and White" in various therapeutic communities.

The methodology integrates document analysis, participant observation from facilitators and programme evaluations to provide a comprehensive understanding of the impact of chess on rehabilitation efforts. The method of data analysis is content analysis, also known as the interpretation method. Interpretation techniques imply structuring and summarising, comparison and synthesis.

Results

In **Italy**, the chess training course officially commenced on 17 December 2024, and is set to run until June 2025. With a group of approximately 10–12 inmates (all awaiting sentencing), the course is designed not only to improve chess skills but also to foster personal development and support social reintegration. Given that the detention center is a pre-trial facility (with sentences generally under five years), some inmates might complete their sentences before the course concludes, making every lesson particularly valuable. It should be pointed that the chess course was postponed due to unforeseen administrative challenges. The delay provided a valuable opportunity for reflection and preparation. The complex approval process—compounded by the sensitive nature of the penitentiary environment—required a diplomatic approach to resolve. Following the initial start in mid-December, the Christmas break allowed both - the inmates and the instructor - to familiarize ourselves with the course structure. This pause was instrumental in identifying potential challenges, standardizing the group's skill levels, and setting the stage for more focused training sessions when the course resumed on 7 January 2025 with the introduction of evaluation questionnaires and efforts to align the group's skills. The participants come from diverse backgrounds, including Italian inmates (some of Romani origin), a Moroccan, a Romanian, and individuals from regions with a deep chess culture, such as the former Yugoslavia and the former USSR. Their skill levels vary, but all have shown great enthusiasm for the game. One of the most significant cases is that of a 76-year-old Romanian inmate who initially displayed deep depression and social withdrawal. He had previously undergone extreme hunger strikes, raising serious concerns about his well-being. However, chess has sparked a new sense of purpose in him, and he now shows great enthusiasm for the lessons. Seeing his transformation, we are currently working to obtain a special permit that would allow him to participate in an external tournament - an initiative that could have a profound impact on his rehabilitation process. Another touching story comes from a 32-year-old Italian inmate, who decided to learn chess after discovering that his 8-year-old son had started playing at school. His motivation to improve is deeply personal: he wants to be able to play with his son once he is released. This personal connection has made his engagement

in the course particularly meaningful, demonstrating how chess can serve as a bridge between incarcerated individuals and their families.

Given that this is a pre-trial detention facility, where sentences are typically less than five years, some inmates may be released before the program concludes. This makes every lesson particularly valuable, emphasizing the importance of maximizing the impact of each session. The instructor's observations help discover some practical outcomes:

- Group dynamics and engagement: Although punctuality was an initial challenge due to logistical issues within the prison, attendance has improved significantly over time, with inmates arriving on time and engaging actively during lessons.
- Integrated teaching approach: The lessons balance theoretical instruction (using materials such as tactical exercises from a book containing chess combinations, e.g. Chess Informant Encyclopedia) with practical play. The incorporation of chess metaphors into broader discussions about life has proven particularly effective in reinforcing key values.
- Adaptability and maximizing each lesson: Since some inmates may leave before the course concludes, each session is structured to provide immediate educational and motivational benefits, ensuring that participants can take valuable lessons with them, even if they do not complete the full program.

Instructor's observations also have led to the finding that, for a customised educational pathway, "mens sana in corpore sano" is important. The phrase is Latin, usually translated as "a healthy mind in a healthy body". Chess players often neglect their physical health, exposing themselves to significant risks such as heart problems and chronic stress due to competition preparation. However, maintaining a healthy and active body is crucial not only for general well-being, but also for improving chess performance. In fact, scientific studies have shown a direct link between physical exercise and the enhancement of cognitive abilities, which are crucial for excelling in chess. Physical activity induces beneficial changes in the brain, such as neurogenesis (the birth of new neurons) and synaptic plasticity (the formation of new connections between neurons). These processes improve memory, concentration and creativity, all key skills for chess players. In addition, the increased blood flow to the brain stimulated by exercise ensures a better supply of oxygen and nutrients to brain cells, enhancing their function. Regular physical activity such as walking, which does not require specialised equipment and is easily adapted to any location, offers numerous health benefits. Just thirty minutes of daily walking, combined with two hours a week at the gym, can rewind our biological clock by 6-8 years, helping with weight management and reducing LDL (so called "bad") cholesterol levels. This simple regimen not only prevents obesity, but also has positive effects on memory and mental concentration through the production of endorphins, which relieve physical and emotional pain. There is no universally suitable physical activity for all chess players, and the choice depends on personal preferences and individual goals. However, aerobic activities such as running, swimming and cycling, as well as strength training, yoga and Pilates, can provide significant benefits. Ultimately, combining a sharp mind with a healthy body not only improves the quality of life, but can also be the key to excelling in the chess world.

The design of a chess course within prisons presents a number of unique challenges that require a focused and flexible pedagogical approach. The diversity of educational backgrounds among the inmates is a major challenge for the effectiveness of the course. In many cases, prisoners come from backgrounds where access to structured education has been limited or fragmented. This makes it essential to adopt a course that can adapt to different learning needs, offering both basic courses for beginners and advanced modules for those who already have some competence in the game of chess. The primary objective of a chess course in prison is not simply to teach the game itself, but rather the use of chess as a tool for the development of cognitive and social skills that can support the rehabilitation process of inmates. This holistic

approach aims to intertwine the goals of chess teaching with broader educational objectives, such as improving problem-solving skills, increasing emotional resilience and strengthening social skills.

One of the key elements in the design of the course is the sequencing of the topics covered. The course should begin by teaching the basic rules of chess, including the movements of the pieces, the conditions of victory and the basic principles of strategy. This step-by-step approach ensures that each inmate gains a solid understanding of the basics of the game, which will serve as a foundation for later learning more complex strategies. However, the progression to advanced concepts must be carefully calibrated to keep participants' interest and involvement high, taking into account their different learning speeds. In addition to technical chess instruction, the course must include activities that promote the development of transferable cognitive skills. For example, critical thinking and problem solving are two fundamental skills that chess can strengthen. By analysing moves and planning strategies, prisoners learn to consider the consequences of their actions, a crucial skill also in everyday life decisions. These reflective exercises not only improve their playing skills, but also contribute to greater awareness and responsibility in making decisions in their personal lives. In parallel, the chess course must also address the development of social and emotional skills. The game of chess, by its very nature, requires a high level of emotional control, as defeats and failures are an integral part of the learning process. Teaching prisoners to deal with frustration and to see defeat as an opportunity for growth can have a positive impact on their behaviour inside and outside prison. In addition, group game sessions and tournaments organised in the prison setting can facilitate the building of positive relationships between prisoners, promoting cooperation and mutual respect. The integration of these cognitive and social components into the chess course responds to an educational vision that goes beyond simply teaching the rules of the game. It aims to build a bridge between theoretical learning and the practical application of skills, facilitating the rehabilitation of prisoners. The skills developed through the game of chess can in fact become valuable tools for dealing with everyday challenges, facilitating a smoother transition to social reintegration. The successful implementation of a chess course in a prison environment requires careful planning and the collaboration of various professionals. The training of instructors is a crucial step, as they must be able not only to pass on technical chess-related knowledge, but also to facilitate the development of the cognitive and social skills mentioned above. Instructors may be members of prison staff, external volunteers or inmates who have acquired a qualification through the same course. In any case, it is essential that they receive specific preparation to deal with the particular dynamics of teaching in prison.

Chess training has always been much more than a recreational activity. Chess training impacts

- Cognitive and strategic development: The sessions have sharpened critical skills such as calculation, observation, and long-term planning—abilities that are equally applicable to everyday life.
- Life lessons through metaphors: We actively integrate life lessons into our discussions. Using chess as a metaphor, we emphasize:
 - The importance of avoiding impulsivity and instead taking the time to analyze situations thoroughly.
 - The value of seeing the bigger picture, sacrificing something in the short term for a greater long-term gain.
 - The need to maintain concentration, as one careless mistake can undo all previous efforts.
 - The acceptance of defeat, encouraging players to shake hands and move forward without frustration.

- Personal growth and social inclusion: The chess course has promoted dialogue and social interaction, creating an environment where mutual respect and community are paramount.

In **Latvia**, chess training within the ICARUS project took place at Cesis Correctional Facility for Juveniles. This is the institution for prison inmates who are males between 15-25 years old. It should be pointed that the ICARUS project was the very first initiative for the improvement of social inclusion of the target group at Cesis Correctional Facility for Juveniles. The institution is located in 100 km from the capital city of Riga in Latvia. Therefore, many trainers prefer to organize chess training in prisons within “Chess in Prisons programme in Latvia” (FIDE, 2022b) in Riga and nearby cities and towns, located in about 20-30 km from Riga. The trainees’ group was composed of 13 male prisoners. However, the number of trainees was decreasing with the training course as one trainee was released, and some were sick. It is worth noting that the trainees arrive to the Facility from all the regions in Latvia. The trainees are not allowed for leaving the Facility. Among them was also a prisoner who committed a murder and other ones, who committed sex crimes. This information about the trainees was given to the trainers by the Facility administration. One trainee had difficulties with understanding when the trainers spoke Latvian language. Probably, it was not his native language. Several trainees attend school courses, one trainee studied for receiving a higher education degree.

The chess game presentation started with the introduction of the chess board and chess pieces. Movements of each chess piece were explained in detail. The trainees were asked with what kind of chess piece they associate themselves. Each trainee had to give his answer to this question. The majority of the trainees has selected the Rook. The rook is characterised that it may move to any square along the file or the rank on which it stands. In other words, the rook moves in a straight line, horizontally and vertically, one or more spaces at a time, unless another piece stands in its way. A rook cannot jump over another figure. If an opponent's piece stands in its way, the rook can capture it by standing in its place. The Rook is associated with self-control as it was pointed by the ICARUS trainers in the training session carried out in June 2024 as demonstrated in Table 3. Self-identification with the Rook reveals that the trainees unconsciously understand that they lack self-control. Conventionally, people say what they really need. For expressing their needs, people might use an association or other types of thought illustration. A non-sufficient level of self-control was a reason of their stay in Cesis Correctional Facility. While the discussion, two trainees did not pay attention to the trainers’ instructions and were communicating between themselves. The other trainees asked them to keep silence for better training material absorption. The trainees were given an opportunity to start playing chess. While this short chess playing session, surrounding staff members or security personal, available in the training room for keeping the order, expressed their wish also to learn more about chess game in order to help the trainees to achieve better results.

In order to support the wish of the administration and staff members of Cesis Correctional Facility to enhance the trainees’ knowledge about chess game, the trainer from Latvia Chess Federation provided two books “The Art to Win” written by Zigurds Lanka to the library of Cesis Correctional Facility. The trainees who serve the sentence were highly interested in chess training as a means of their integration into society. They receive some points for participating in training. These points impact their stay in prison as well as release from prison.

Table 3 Associative thinking of chess pieces (by the authors)

Chess piece's name	Image of chess piece	Chess characteristic	A shot description
Pawn		Motivation	Can become a more valuable piece; Moves only forward
Bishop		Self-control	Always in straight line
Knight		Social skills	Ample movement; Sacred value
Rook			
Queen		Empathy	Can move as all the other pieces
King		Self-awareness	Knows its value; Social distance

In **Spain**, Club Magic initiated its prison chess experience in 2009 with a three-month pilot programme in the prisons of Badajoz and Cáceres, under the "Our Chess Reintegrates" initiative. The initial objectives were to teach chess as a game, to introduce strategic thinking applicable to life through chess principles, to encourage the adoption of values associated with chess players, such as respect for rules, sportsmanship, courtesy, valuing silence, and other civic virtues, and to create synergies between chess and post-prison life.

This three-month pilot programme was highly successful and has since been continuously supported by "Fundación Jóvenes y Deporte" of the regional government of Extremadura, an institution that promotes social inclusion through sport. The programme operates year-round, with two weekly sessions. Over the years, its contents have been adapted to meet the needs of an increasingly diverse prison population. Since 2010 (Montero, 2021b), the programme has incorporated and prioritised:

- The Cognitive Training Method through Chess (from now ECAM), developed by psychologist Juan Antonio Montero, the original designer of the programme in 2009 (FIDE, 2025). This method uses chess-based exercises to stimulate cognitive functions.
- Ongoing interaction with society, including lectures and visits from high-level chess players, athletes, professors, and prominent social figures.
- Continuous chess practice to reinforce acquired skills and values.

Since its inception, more than 800 inmates have participated, approximately 5% of whom were women. Notably, in alignment with the programme's objectives, two former participants were later employed by the Club Magic, and five others engaged in volunteer activities post-release.

From all the stories Club Magic has encountered over the years there was an inmate at Cáceres prison, “Felipe”, who wrote a very interesting reflection back in 2011 on chess and life - particularly on the positioning and use of pieces during a game. And it serves as a perfect case-study of what goes through the mind of the inmates and how chess can help them. A phrase, often related to Argentine Grandmaster Oscar Panno, mentioned by the chess instructor in class—“In chess, one bad move nullifies 40 good ones ” - made Felipe, a prison inmate, reflect on both chess moves and life itself. Here’s what Felipe wrote: “We live in a society where values and movements are parallel to, or resemble, those in chess. It is true that one bad move cancels out 40 good ones, both in chess and in society. I compare this phrase to my own life. I started my game with good results; I positioned myself in society with honesty, hard work, and effort, respecting the values that society has set—such as coexistence, for example. I advanced my pawns, brought out my knights, castled, and kept progressing, getting ever closer to achieving my goal: winning the game. But after one bad move, I lost my queen and found myself in check. My knights, bishops, and pawns were taken, and before I could react, I realised that everything I had worked for - all my efforts, all my good deeds, all my great moves in my business and in my life - had been for nothing. One bad move brought me here. I was careless in that mistake, but check is not checkmate. I can resume the game - I still have my king, I still have pieces. And without a doubt, my life is like a game of chess. I made one bad move, and it wiped out all the good ones I had made. The game is not over. I will try to fight with the pieces I have left and win the game.”

This inmate reflection reveals how chess can serve as both a metaphor for life and a tool for personal growth, particularly within the confines of prison. His comparison between the game and his own experiences suggests that chess offers a way to understand choices, consequences, and the potential for redemption. The idea - that one bad move cancels out 40 good ones - mirrors the reality of a single mistake overshadowing years of effort. However, his insistence that check is not checkmate speaks to the resilience and strategic thinking that chess encourages. It teaches patience and the ability to reassess a difficult position, skills that are not only crucial in the game but also in navigating the challenges of life after incarceration. Prison often strips individuals of autonomy, imposing rigid structures that leave little room for independent decision-making. Chess, by contrast, provides a rare space where thought, strategy, and individual agency matter. It encourages players to consider the long-term impact of their actions, fostering a mindset that values careful planning over impulsive decisions as has been suggested by the early works of Montero (2008) which were the initial idea behind all these social initiatives. Felipe’s reflection suggests that, even in an environment where much of his life is controlled by external forces, he can still engage in a process that rewards intelligence, discipline, and foresight. The game becomes a way to reclaim a sense of control and to prove, if only to himself, that he can still make meaningful moves.

Beyond the individual, chess also creates a shared language among inmates. The game follows universal rules, allowing people from different backgrounds to engage with one another on equal footing. In a setting where divisions and hierarchies often dominate, chess offers a rare form of interaction that is based on intellect rather than status or past actions. Felipe’s determination to continue playing, despite his losses, reflects a deeper truth about the game’s role in prison life - it is not just about winning but about persistence, adaptation, and the belief that no position is ever truly hopeless. Following this idea about the shared language chess may offer behind bars, there’s the experience at the Burgos prison, in the region of Castilla y León (Spain). This prison, has also been using a similar system to the two centres in Extremadura, adapting the methodology but always keeping the cognitive training as a vital part of the project. The person responsible for the project also writes articles in a newspaper called “La voz del patio” (the voice of the courtyard) (<https://www.lavozdelpatio.es>) which is the most important newspaper in Spain about the life in prison. In one of those articles, there’s a testimony by one

of the prison officers in Burgos. Here's an extract from that article (J.M.R., 2024): "When, in the courtyard of Burgos prison, with its usual hustle and bustle, I see two inmates quietly playing a game of chess. Two players face to face in front of the board, motionless (except when it's their turn to move a piece), in absolute silence, barely looking at each other, completely absorbed in the game... The peculiar microcosm that sometimes forms around a chess match is a moving spectacle, a "poetic" feat amidst the prosaic bleakness of a prison. Someone who has been watching the game intently approaches me and tells me he doesn't know how to play chess, that he'd like to learn, that perhaps I could teach him, that nothing would give him more satisfaction than to beat me one day. I try to explain a few things about the game, but I quickly notice that he grows tired. I suspect he isn't actually that interested in the technical details of chess. What truly intrigues him is the spellbinding force that holds those two players in front of the board, beyond the prison walls - exactly what any inmate would long for.

A few years ago, a group of Bulgarians and Georgians ended up in this prison. They were older men, the last heirs of the strict educational system of the Soviet era, which had included chess as an activity of patriotic interest in the pre-war climate of the so-called "Cold War." Once they had overcome their initial bewilderment at my invitation to play chess with a prison officer, I had the chance to play with (against) each of them on many occasions. I soon realised the opportunities chess provides for encounters and connections between strangers—the chance even to glimpse and discern the personality and character of others. Every gesture, every mannerism, the way one places the pieces, moves them across the board, captures an opponent's piece, the expression left on one's face when winning or losing... One of the Bulgarians, "R", a towering, lumberjack-like figure from the taiga, silent, slow, and deliberate like a century-old tortoise, would say "thank you" after every game, whether he had won or lost. A thank you that seemed misplaced, out of context. Many games later, once he had picked up more Spanish, he confessed that he saw it as an act of generosity on my part to sit and play with him. That, I thought, was the ultimate twist: it turns out that playing chess can also be considered a pure act of philanthropy. What a surprise!"

Once we gather these testimonies, we understand that Felipe's story of determination to continue playing (Cáceres prison, Extremadura), despite his losses, reflects a deeper truth about the game's role in prison life - it is not just about winning but about persistence, adaptation, and the belief that no position is ever truly hopeless. Chess offers inmates a rare form of escape, a mental refuge from the confinement of prison life. The game imposes structure and focus, allowing players to lose themselves in strategy, momentarily transcending their reality. The fascination of the onlooker who wishes to learn is telling - it is not just the mechanics of the game that intrigue him, but the almost meditative state of the players, a form of intellectual freedom within physical captivity. In an environment defined by restriction, chess provides a unique space for concentration, discipline, and quiet reflection.

What makes the second account from Burgos prison especially striking is that it comes from a prison officer, someone who represents authority within the system. His experience playing with inmates, particularly those from the former Soviet bloc, highlights chess as a bridge between individuals who might otherwise remain distant, breaking down barriers between prisoners and staff. The officer's realisation that one inmate saw playing with him as an act of generosity proves how chess fosters unexpected human connections, even in a place designed to suppress them.

Despite its benefits, chess is not universally accessible. Some inmates do not know how to play or quickly lose interest when faced with its complexity, and skill differences can create barriers to engagement (also present in this prison guard testimony). Yet, using the board and the chess pieces for cognitive training helps overcome these limitations, developing patience, strategic thinking, and problem-solving skills. Even for those who never master the game, the

act of learning provides mental discipline and a sense of achievement, proving that chess is more than just a pastime—it is a tool for growth, even within the confines of prison.

The new international initiative represented by Erasmus+ Project Icarus follows this same trend, building on years of work already implemented in the prisons of Extremadura or Burgos. Rather than being an isolated effort, it represents a continuation of an approach that has already proven valuable in Spain. By reinforcing the use of chess as a means of personal and social development, Project Icarus strengthens an existing framework that has helped inmates engage in strategic thinking, self-reflection, and positive social interaction. This ongoing implementation suggests that chess is more than just a game in these contexts - it is a tool for transformation, one that continues to shape lives even within the most restrictive environments.

The influence of chess training is revealed via prison inmates'

- Cognitive Development – Participants across all three programmes demonstrated improvements in memory as shown in Figure 2, problem-solving skills, and logical reasoning, as assessed through ECAM (FIDE, 2025). These improvements align with Montero's framework (2008), which emphasises cognitive engagement as a pillar of successful rehabilitation. Montero was acknowledged as an "world-class authority on the topic of therapeutic applications of chess" (FIDE, 2022a). The long-term nature of these programmes allows for sustained cognitive benefits beyond short-term interventions.

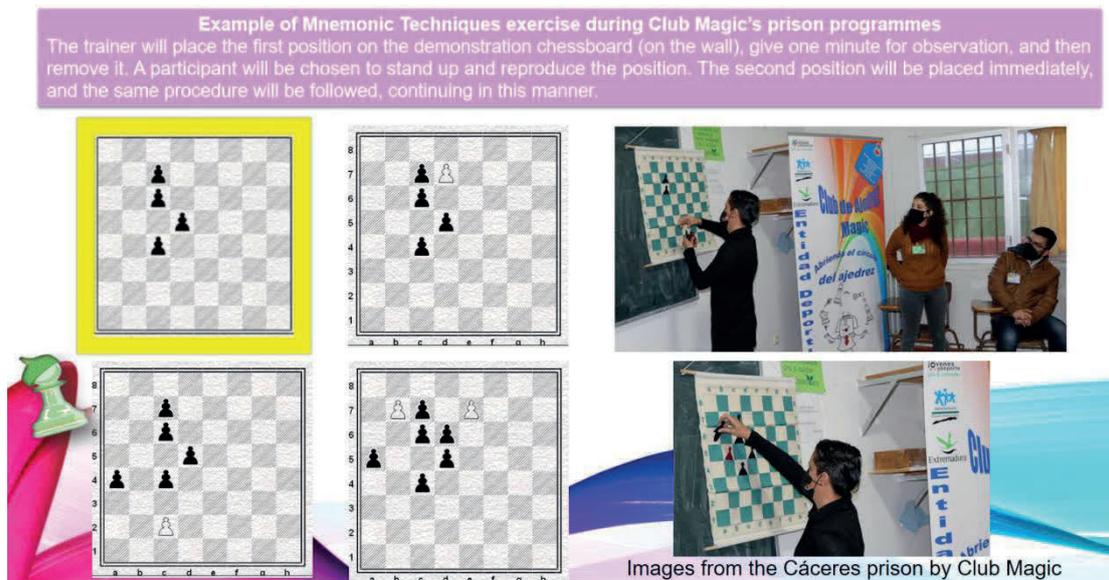


Figure 2 Example of mnemonic techniques (by Club Magic)

- Behavioural Transformation – Observations revealed enhanced patience, emotional regulation, and improved decision-making among inmates and individuals undergoing addiction recovery. Chess training provided a structured and low-risk environment to develop these essential skills. The continued success of these programmes across multiple years indicates their ability to instil long-lasting behavioural changes.
- Social Reintegration Potential – The structured thinking and self-discipline cultivated through chess facilitated smoother transitions post-incarceration and post-rehabilitation. Chess also helped inmates develop cooperative and respectful behaviours, as emphasised in social reintegration theories. The fact that "Our Chess Reintegrates" has been active for over 15 years further highlights its impact on social reintegration.

- Scalability Across Contexts – The cognitive training approach as reflected in Figure 3 employed in correctional facilities proved equally effective within therapeutic communities, highlighting chess as a flexible rehabilitative tool adaptable to diverse environments. Programmes such as "Cognitive Rehabilitation in Black and White," which has been running for more than a decade, demonstrate that chess-based cognitive training is not confined to the prison system but has broader applications.

Discussion

Chess serves as a powerful rehabilitative tool, offering cognitive, emotional, and social benefits. The initiatives analysed in this study demonstrate the effectiveness of chess in fostering personal growth and preparation for reintegration. Applying Barbeito's theoretical approach (2021), this study confirms that structured cognitive activities like chess facilitation of behavioural transformation and resilience. The success of the training programmes "Our Chess Reintegrates," "Keep a Cool Head," and "Cognitive Rehabilitation in Black and White" in Spain as well as chess training in Italy and Latvia underscores the adaptability of chess-based rehabilitation programmes. Moreover, the long-term implementation of these programmes supports their sustainability and reliability as rehabilitation tools.

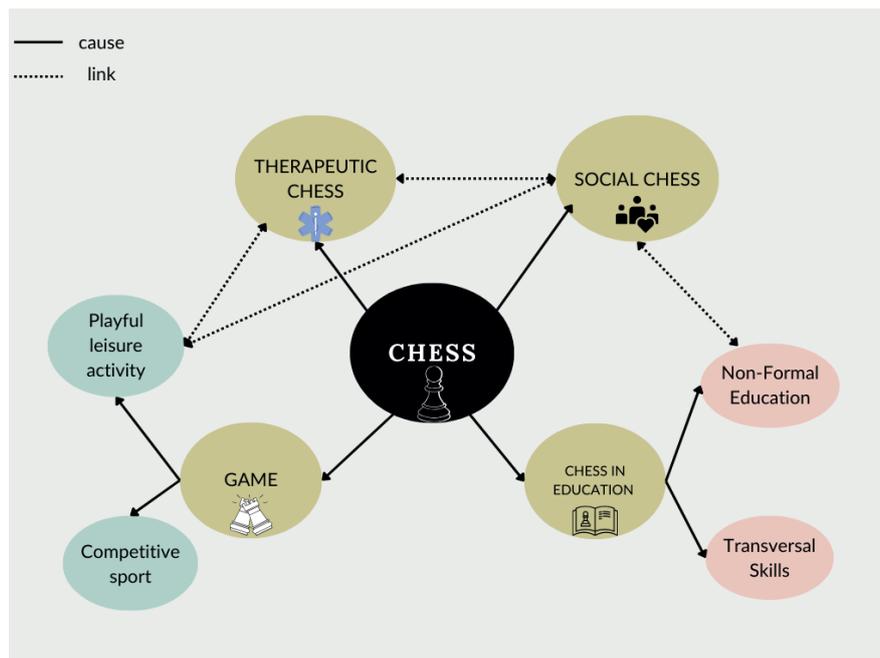


Figure 3 *Conceptual map and chess applications* (Barbeito, 2021)

Table 3 specifies the prevailing impact of chess training in Italy, Latvia, and Spain based on the content analysis.

Table 3 Impact of Chess Training in Selected European Countries (by the authors)

Impact area	Italy	Latvia	Spain
Perspective	The internal perspectives of prison inmates (enthusiasm, time management, cognitive skills, etc) prevails	The internal perspectives of prison inmates (interest in chess, chess as a means of release, etc) prevails	The external perspective (shared values and language, interaction with society, sustainability, etc) prevails
Life domain	1. Internal: -Individual (enthusiasm) -Individual working life (time management, problem solving, etc) -Individual beliefs (metaphor) -Individual health conditions (cholesterol, weight management, depression, etc) 2. External: -Education (diversity, topic sequence, structured education)	1. Internal: -Individual (interest, self-control) -Learning (associative thinking, language)	1. Internal: -Individual (cognitive method) -Individual working life (values) -Individual beliefs (no hopeless position) 2. External: -Education (shared language, sustainable training, interaction with society, etc)
Level	Individual (focus on prison inmate)	Organisational (focus on the interaction between prison inmates and prison staff: prison staff wants to learn chess in order to help prison inmates improve their social inclusion)	Organisational (focus on the interaction between prison inmates and prison staff)
Emotions	Positive (emotional resilience)	Negative (silence was not always kept)	Positive (no hopeless position)

Source: the authors.

Our results allow finding out that in Italy and Latvia chess training focuses on the individual's abilities, while in Spain – on trainees' social skills and cognitive functions.

In Italy, chess training is oriented to preparation for working life. In Latvia, the attention is paid to individuals' capabilities of self-control and thinking. In Spain, chess training focused on sharing the common values but always keeping the personalised cognitive training as the starting point. In Spain, the approach to chess is transformative, with a strong emphasis on using it to enhance cognitive functions such as attention and memory to their fullest potential. The idea is to promote cognitive training through chess by teaching basic moves tailored to this purpose, and encouraging those who show particular interest to take their practice further. In essence, the goal is to provide personalised training within a group setting.

In Italy, training was dedicated to individuals, while in Latvia and Spain, chess training at the organizational level prevailed. The organisational level of chess training implied that chess training is used in a sustainable way, e.g. continued chess playing, chess play with players who have different levels in chess game skills, etc.

In Italy and Spain, positive emotions were dominant in chess training, while in Latvia – negative. It is worth mentioning that the leverage of negative emotions in chess training is relevant when it is related to learners' dissatisfaction with their existing knowledge, skills, and competence (Ahrens, Zascerska, Bikova, Aleksejeva, Zascerskis, & Gukovica, 2023a). In

Latvia, negative emotions were linked with the noisy atmosphere in the training room. Therefore, the trainees became aware that silence in a training room is an important factor for their cognitive development. It is crucial to emphasize that the other impacts of negative emotions in training should be avoided (Ahrens, Zascersinska, Bikova, Aleksejeva, Zascersinskis, & Gukovica, 2023a).

Conclusions

The theoretical analysis allows determining a classification of impact's areas. This theoretical finding can help other researchers understand and highlight the significance of their scientific or research contribution for the development of a wider society.

Our analysis of piloting experience of chess play in prisons in the selected European countries allows concluding that the chess training was effective. In general, each individual's life is important for society. It is particularly beneficial, if a prison inmate is socially included in the society. Therefore, the quality of chess training for prison inmates has to prevail. The comparative analysis of chess training in Italy, Latvia, and Spain reveals that these countries' experience is diverse due to their cultural background and educational tradition. Further on, chess training in prisons in Italy, Latvia, and Spain is complicated by prison inmates who belong to other countries, e.g. Morocco, Romania, former Yugoslavia, and other countries. Therefore, more studies are needed in order to establish effective chess training in prisons for the advancement of integration of prison inmates into the European society.

Our empirical study is limited by the participation of only three European countries in the chess training for prison inmates. If more countries take part in the study, the other results could be attained. A limitation is also that chess training provided at the same prison hardly involves the same prison inmates due to their release, being sick, and other reasons. That makes chess training of the fragmentary nature and delays the development of the cognitive and social skills of the prison inmates.

Future research should explore longitudinal impacts of such interventions, examining the sustained benefits post-release and post-rehabilitation. Additionally, further studies could investigate the feasibility of integrating chess into broader correctional and therapeutic education frameworks on an international scale. Involvement of other European countries in the study will be planned. Comparative studies of other European countries will be carried out as well.

Acknowledgement

The presented work has been carried out within the Project "Including Chess as a Re-education Up-Skilling Tool" (ICARUS), KA220-ADU - Cooperation partnerships in adult education, Project Number 2023-1-IT02-KA220-ADU-000152409.

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