

## The importance of toys in shaping a nation's cultural code

**Abstract.** *The authors of the article reveal the cultural code of the nation, explore the influence of 3D jigsaw puzzles as a way to form the cultural patterns in children's mind.*

*A toy is a child's constant companion. It is specially designed by adults for educational purposes. For instance, jigsaw puzzles, forcing to watch the color and shape of parts, involve both brain hemispheres, bringing a person into a calm, concentrated and focused state. The constant development of these skills forms personal qualities.*

*3D jigsaw puzzles are a challenging structure that you need to build. The completed task, the achieved goal is a victory. Any victory gives a feeling of self- pride, enhances self-esteem. The image of such toy remains in the back of mind as a thing arising pleasant sensations in the mind and body.*

*The authors conduct analytical research of the souvenir and kid's toy market in the Republic of Kazakhstan including 3D architectural jigsaw puzzles. Also, a patent analysis of 3D jigsaw puzzles for children was carried out in the Google Patents system.*

*According to the analysis results, the annual patent activity in China over the past nine years proves an almost threefold increase. Such indicators confirm the high activity of promoting kid's 3D jigsaw puzzles to obtain intellectual property protection.*

*Development and production of 3D jigsaw puzzle products associated with the historical and modern architectural culture of Kazakhstan has become a topic put forward in support of the state development program "Rukhani Zhangyru", "Archive – 2025" proposed by N. Nazarbayev, the President of the Republic of Kazakhstan and can be the logical completion of the project of Atameken Open-Air Museum.*

*The Rukhani Zhagyru program is one of the leading directions of the policy of the Republic of Kazakhstan that calls for the restoration of history, the preservation and development of the nation in accordance with its customs and traditions.*

**Key words:** 3D puzzles, national code, architectural culture, traditions, national treasure, logics.

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### Introduction

The uniqueness of culture as a historically defined level of the spiritual development of society, the creative forces and abilities of a person, embodied in the diverse forms and spheres of his life, ideals and values, lies in the inseparable relationship of tradition and innovation. The

main way to preserve and transmit the cultural traditions of the nation, their continuous development and renewal is its cultural code [1].

The cultural code is the key to understanding this type of culture; unique cultural characteristics inherited from ancestors by nations; this is some form of coded information that allows you to identify a culture.

The cultural code defines a set of images that are associated with a complex stereotype in the mind. This cultural unconscious is not what is being said or clearly understood, but what is hidden from understanding, but manifested in deeds. The cultural code of a nation helps to understand its behavioral reactions, determines the people's psychology [2].

"Space is the measure of all things, time is the measure of all events. When the horizons of space and time merge, the national history begins," - the head of state's article "The Seven Facets of the Great Steppe" says [3].

The Rukhani Zhagyru program is one of the leading directions of the policy of the Republic of Kazakhstan that calls for the restoration of history, the preservation and development of the nation in accordance with its customs and traditions.

### Main part

The upbringing of a child, first of all, is formed in the family, in the language and values of the family, on those toys and upbringing, which he receives at home.

A toy is a constant companion of a child from the first days of birth. It is specially created by an adult person for educational purposes to prepare the child for entry into public relations. The toy acts as a subject of fun, entertainment, joy for the child, and at the same time, it is the most important means of psychological development.

We buy toys that are on sale on the shelves. The main share of toys comes to the counter from abroad.

Upgrade Capital provided the data of the kid's toy products market they analyzed. In 2018, the market value of kid's toy products was positive due to a high demographic increase. Even during the crisis of 2014-2017, when revenues decreased by 33 % according to experts from Upgrade Capital, the market for kid's toy products grew by 20 % and amounted to \$ 2.5-3 billion.

An analysis of the open market volume for baby strollers and child car seats shows that the market is full of products at the amount of 120 million U.S. dollars, but according to customs

indicators, the amount of imported goods amounts to 9 million dollars. Many goods are imported illegally.

The difference in the indicators of the illegal market for the sale of kid's toy products has been exceeded not tens, but hundreds of times. This means that the market for children's products is not audited by either the Tax Committee or other government authorities.

There are a lot of toys on the market that negatively affect the upbringing and psychology of children. There are no toys that would provide children with national education. There are no dolls in national costumes, instead of them, we see Monster High or Barbie dolls, which have nothing to do with the image of a Kazakh girl or brave horsemen-batyr embodying the spirit of the Kazakhs. The root of this problem is the ideology of national education.

Western countries develop cartoons and comics for the toy business, invent heroes and cartoon characters. The profits from the toy industry belong to these manufacturers. And the heroes of the industry become heroes of children, including our children.

Today, parents intend to buy not only beautiful, functional toys, but also give more preference to educational tabletop games and toys, including jigsaw puzzles, LEGO, chess, etc.

According to the patent database analysis, the production of 3D jigsaw puzzles is a profitable business. 3D jigsaw puzzles of world architecture are also present in our markets.

According to the Nazarbayev's project the Atameken Open-Air Museum was built in the capital in 2011. The museum shows the significant architectural culture of Kazakhstan to visitors. 3D jigsaw puzzles can become an excellent museum souvenir for city visitors. They are easy to transport, light -weight and wrapped-up , and associated with the places the tourists visited.

Jigsaw puzzles can be used as advertising for the private sector, for museums, shopping centers. For example, exchange program students can present 3D jigsaw puzzles of their university as a gift, which will become an excellent PR for their university.

The architecture of the country is the image of the government. When we see the Eiffel Tower,

we understand that this is France, when we see Big Ben, we know that this is England. This happens not because we have been there and saw these buildings, but because these buildings are well advertised. We often see their images in the form of toys and on beautiful pictures.

There are a lot of 3D jigsaw puzzles of the world architecture made by Chinese manufacturers on store shelves. But according to the 3D jigsaw puzzle patent database analysis, there are no Kazakhstan patents.

The authors of this article have developed the designs for 3D jigsaw puzzles of modern strategically important architectural buildings of the capital of the Republic of Kazakhstan and offer to put these products into production.

Over the years of independence, a new capital has grown in our country with beautiful architecture, cities have grown. Archaeological excavations are underway, new discoveries about old cities appear. All these events make us pay attention to our architectural culture.



**Figure 1.** Prototypes of 3D puzzles «Palace of Peace and Accord», «Opera Theater» and «Hazret Sultan Mosque»

The industrial model «Akorda» consists of 50 elements, it can be assembled independently or with the help of instructions. For the new year a lot of boys and girls received gifts from Akimat Astana with 3D puzzles Akorda.

The industrial design 3D puzzle by classification is suitable for toy products that form spatial thinking, train motor skills, develop logical thinking. And the more complicated the toy is, the more valuable it is.

The authors have ready-made 3D puzzles of the architectural culture of the Republic of Kazakhstan, like, the mosque «Hazret Sultan», «Palace of Peace and Accord», «Opera Theater» shown in Figure 1.

The prototype 3D puzzle «Mosque Hazret Sultan», which is a copy of the Hazret Sultan Mosque in Astana, repeating all the architectural charm of the original, consists of 150 elements assembled in the size 420x299mm.

The number of elements of the 3D puzzle «Opera Theater» is about the same, assembling these puzzles brings great pleasure. This toy is recommended for parents to collect with the

child. In today's busy life, there is absolutely no way to spend time with a child in order to have fun and useful leisure time. During the assembly process, the parent will have the opportunity to quietly talk with his child.

Puzzle Palace of Peace and Accord consists of only 14 elements, it can be assembled by children of an earlier age, in general 3D puzzles are intended for children 6 and older. Occupation 3D puzzles like even an adult.

On average, a toy assembly of 120 items takes about 3 hours.

Despite all sorts of difficulties, the authors were able to bring the first development to the market, in early July 2018. The first 3D puzzle «Akorda», from the «Modern Architecture of Kazakhstan» series, was released as the most important and significant building of the Republic of Kazakhstan.

Full production of 3D puzzles, in Kazakhstan requires the availability of expensive machines. The toy is based on a sandwich panel consisting of paper and extruded polystyrene, which we do not produce, so the base was made in China,

and the cutting and assembly were made in Kazakhstan.

The development of the series «History of Kazakhstan steppes» is planned.

Fostering a sense of pride in one's history and fostering patriotism must begin at the school bench [3].

In the puzzles of the "History of the Kazakh steppes" series the buyer will see the historical buildings of Turkestan - the mausoleum of Khoja Ahmet Yassavi, Karakhan in Taraz, will be able to play the old cities in puzzles, learn the history of their people. In the future, the company intends to produce historical 3D puzzles with different stories about the cities of Bosa, Sarayshyk, Otyrar, Taraz, Akyrtas, etc.

Analysis of patent applicants in the field of 3D puzzles.

According to the results of the patent search conducted on the open PatentInspiration database at the time of the search, 4,508 units of patent documents were found in the IPC class specified in the patent. The main market leaders in relation to patent documents on the subject of three-dimensional puzzle research



**Figure 2.** Industrial design of the 3D puzzle «Akorda»

are companies DART IND INC, CHUANG SHIH-HUNG, MA DAWEI, DISTRIBUTIONS MURALEX INC, TOMY CO LTD, PAVLOVIC ZORAN, RAVENSBURGER SPIELEVERLAG GMBH, JOHNSON & JOHNSON BABY PROD,

Geographical analysis of patenting applications for the topic under study.

**Table 1** – Geography of patenting applications on the subject under study

№	1	2	3	4	5	6	7	8	9
Country	States	China	Deutschland	Taiwan Province of China	Korea, Republic	Czech Republic	Spain	Japan	Great Britain
Geographical analysis of the patent application for the subject of study patents	346	339	254	179	143	128	123	122	115
Number of countries	1	1	1	1	1	1	1	1	1
№	10	11	12	13	14	15	16	17	18
Country	France	Canada	Brazil	Hungary	Switzerland	Australia	Italy	Serbia and Montenegro	Bulgaria

Geographical analysis of the patent application for the subject of study patents	111	89	78	72	60	55	53	26	25
Number of countries	1	1	1	1	1	1	1	1	1
№	19	20	21	22	23	24	25	26	27
Country	Belgium, Israel, Poland	Netherlands	Soviet Union (Russia since 1992)	Slovakia	Hong Kong	New Zealand	Liechtenstein	Russian Federation	Mexico
Geographical analysis of the patent application for the subject of study patents	23	21	20	17	16	15	13	12	11
Number of countries	2	1	1	1	1	1	1	1	1
№	28	29	30	31	32	33	34	35	
Country	Iceland	Croatia Romania	German Democratic Republic	Finland	Ukraine Greece Yugoslavia	Ireland South Africa Turkey Malaysia	Argentina, Sweden, Uruguay, Latvia Philippines, Peru	Austria, Portugal	
Geographical analysis of the patent application for the subject of study patents	10	9	8	7	6	4	3	2	
Number of countries	1	1	2	1	3	5	6	2	

LEMOS MELENDEZ MANUEL, FOK GYEM FINOMMECH ELEKT, MATTEL INC, REALLY USEFUL GAMES COMPANY LI [5].

The annual patent filing activity in China over the past 10 years showed an almost threefold increase compared to 2008 from 30 patents to 90 patents in 2017, as can be seen in table 3. This fact indicates the high activity of the attractiveness of the Chinese market for obtaining intellectual property protection by technologies related to three-dimensional puzzles [5].

According to the results of the patent search conducted on the open GooglePatents database, at the time of the search, 15 616 patent documents were found.

The closest analogs, giving rise to possible patent and legal risks.

In order to determine the patent and legal risks in the territory of the Republic of Kazakhstan, a search was conducted for patents on the open patent bases of Kazpatent.kz (patents not found) and Eapatis.com (patents not found). According to the results of the patent search, 32 patents were revealed in Russian in the Google Patent database [5].

Patent and legal risks on the territory of the Republic of Kazakhstan at the time of the patent search are minimized, since no security documents on the subject under investigation have been found. The following foreign countries

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
CN	11	14	6	9	12	8	10	30	50	30	21	34	45	28	38	37	40	118	90	10
JIP	8	9	10	5	7	9	9	13	6	5	11	6	8	4	4	1	1	3	1	
US	16	12	14	15	17	13	16	8	4	5	2	7	4	7	4	4	5	7	6	4
DE	14	20	12	13	13	16	16	8	5	5	7	6	10		2	2	3	4	2	
WO	8	7	9	3	13	6	7	6	10	9	11	9	12	10	6	7	10	4	8	4
ES	4	4	1	2	2	2	4	2	4	2	3	1	1	3	3	6	1	3	1	
KR		6	5	4	3	11	12	11	6	3	8	23	12	9	7	11	14	6	15	
GB	2	5	3		1		5	2	5	2	4		2	2						
FR	2	1	2	1	4					3			1		1		1			1
EP	2	4	1	7	5	5	7	2	5	3	4	7	5	5	6	4	3	2	5	
AU	11	9	8	2	9	6	4	5	2	1	1	4		4	1	1	2		3	1
BR	1	5	2		4	5	3	1	3	4		2	2		1		2	2		
CZ	12	7	3	4	7	7	3	1	2	1	5	8	9	1	2	2	2	2	4	
TW	3	1	1	7	4	8	6	3	10	8	5	4	5	5	2	4	7	5	8	
CA	3	3	1	1	5	2	2	2	4	3	1	2	2	2	1	1				
HU				1	1	5	1			1			1		1					1
RU	2			4	1	1	4	3	2	2		1		2	1	1	2	1	1	
BE	2			1		1														1
AT	1	3	1	1		4	2	1		1	3		5							
CH			1										1							

**Figure 3.** The annual patent filing activity in China over the past 10 years has shown an almost threefold increase compared with 2008 from 30 patents to 90 patents in 2017

were found with a high concentration of patent documents close to the subject under study: United States of America, China, Germany, Taiwan, Korea, Republic, Czech Republic, Spain, Japan, United Kingdom, France. Revealed a stable trend of patenting in the world on the subject under study, and only in China there is a threefold active growth in patenting inventions on three-dimensional puzzles.

In conclusion, we would like to say that raising a cultural code in a child is raising patriotism of a future citizen of the country.

The cultural code of a nation is formed from childhood, it is important to involve children with school children to the history of the people and one of the means to achieve success in this can be developing 3D puzzles of the "Modern Architecture of Kazakhstan" series representing architecture of recent years and 3D puzzles "History of Kazakhstan steppes" , providing an opportunity to consolidate the history and culture through the games parallel developing the logic and skills of the child. After all, a toy is

primarily a tool for the upbringing and formation of a child for adulthood, accompanied by the correct ideology for the formation of a patriot.

### Conclusion

As a result of the research, the first industrial design of the 3D puzzle "Akorda" from the "Modern Architecture of Kazakhstan" series was developed, put into the market, 3 projects of 3D puzzles were developed and ready for production, then the objects of the Palace of Peace and Accord, Opera Theater and Hazret Sultan Mosque «There is a research work» Development and production of souvenirs and games products 3D puzzles of Kazakhstan Architecture for the formation of the national culture of the younger generation» [6]. See the leadership of the master's thesis on the topic: «Formation of the cultural code of the nation, through 3D puzzles of the architectural culture of Kazakhstan.» Also, the authors participated in competitions of grant financing of the Ministry of Education and

Science of the Republic of Kazakhstan for the commercialization of research activities, and participated in exhibitions of republican displays of research work.

To obtain a 3D model of architectural structures, the authors came up with their own technology using a camera and Dron. To obtain a model around the building, a large number of frames are made, and the resulting images are sent to a special program, from which they quickly receive a 3D job model.

The difference of products from well-known manufacturers is that they use the method of manual bending of puzzle pieces.

Degree of implementation - the results of the study were tested at exhibitions in the sales market, and scientific conferences and seminars, published in print and in social networks. Patent applied for, quality certificate obtained.

Creation provides great satisfaction for the child, forms a sense of dignity and complacency. Creative activity brings great satisfaction from the achievement of the goal. A child who collects a 3D puzzle will love his puzzle, will remember every part, every element of this toy. As a result, he will love his toy, his city, his country, so through the game, you can plant the "seed of love" in the homeland.

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### **Ұлттың мәдени кодын қалыптастырудағы ойыншықтардың маңыздылығы**

**Аңдатпа.** Мақалада автор ұлттың мәдени кодын талқылап, Қазақстанның сәулет өнерін көрсететін 3D пазлдарын жасау және өндірудің болашақ ұрпаққа тигізетін пайдасы туралы айтқан.

Ойыншық - баланың тұрақты серіктесі. Оны ересек адам баланы үйрету мақсатында арнайы жасайды. Егер қажетті ойыншықтарды жасап, өндіре алған жағдайда, 3D пазлдар арқылы тарихи және заманауи сәулет мәдениетін ойыншықтар арқылы тарих пен ұлттық мәдени тәрбие бере отырып, баланың логикасын, кеңістіктікті ойлау қабілеті мен моторикасын қоса жетілдіруге болатынын айтады.

Сондай-ақ, авторлардың Google Patents жүйесінде балалар ойын өнімдеріне патенттік талдау жүргізгендігі, патент талдауларының қорытындысы жайлы айтылған.

Жасалған сараптаманың нәтижесінде жыл сайынғы Қытайдың патентке сұраныс беруі соңғы 9 жылда үш есе өскендігі дәлелденген. Бұндай көрсеткіштер балалар нарығында қарастырылып отырған өнімнің сұранысы, яғни зияткерлік меншікке берілген сұраныс жоғары екендігін атап айтқан.

Қазақстанның тарихи және қазіргі заманғы сәулет мәдениетімен байланысты 3D пазлдар мен кәдесый өндірісі Қазақстан Республикасының Президенті Н.А. Назарбаев ұсынған «Рухани жаңғыру», «Архив-2025» мемлекеттік даму бағдарламасын қолдау мақсатында әзірленген, әрі «Атамекен» ашық аспан мұражайына түпкілікті байланысы бар жоба екендігі айтылған.

**Түйін сөздер:** 3D пазлы, ұлттық код, сәулет мәдениеті, дәстүрлер, ұлттық қазына, логика.

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### **Значение игрушек в формировании культурного кода нации**

**Аннотация.** Авторы статьи исследуют культурный код нации, раскрывая влияние разработки и производства 3D пазлов на формирование культурного кода нации в будущем поколении. Произведен анализ рынка детской и сувенирной продукции, в том числе и по 3D пазлам архитектуры.

Игрушка - неизменный спутник ребенка. Ее специально создает взрослый в воспитательных целях. Если целенаправленно разрабатывать нужные игрушки, тогда можно формировать в детях нужный культурный код, в частности, с помощью игрушек в форме архитектурных ценностей прошлого и современности, и при этом развивать пространственное мышление и моторику.

Также проведен патентный анализ детской игровой продукции «3D пазлы» в системе Google Patents. По его итогам ежегодная активность по подаче заявок на патент в Китае за последние девять лет доказывает почти трехкратный рост. Такие показатели подтверждают высокую активность продвижения детской игровой продукции, связанную с трехмерными пазлами, другими словами, потребность в защите интеллектуальной собственности в этой сфере высока.

Производство и разработка сувенирно-игровой продукции «3D пазлы», ассоциирующейся с исторической и современной архитектурной культурой Казахстана, ведутся в поддержку программы развития государства «Рухани жаңғыру», «Архив 2025», выдвинутой Первым Президентом РК Н.А. Назарбаевым, и являются логическим завершающим звеном проекта под открытым небом «Атамекен».

**Ключевые слова:** 3D пазлы, национальный код, архитектурная культура, традиции, национальное достояние, логика.

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