Designing for Children
- With focus on 'Play + Learn'

Board Games & Education - Transitions & Transformations

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Abstract: Board games have evolved & diversified with evolution of human society across all cultures. The modern period accelerated transformations in board games due to many socio-technological reasons. What were the reasons for the traditional board games, which never showed any association with children, to transform, to a 'play commodity for children' in the modern period? Does understanding evolution of board games in India provide some insights on this issue?

Association of board games & education is not new to design field. Research proves the successful association of board games with learning (Treher, 2011). There have been many experiments & explorations of attempting education through board games. Where does this concept stand in today's context? Are board games in India seen more as an 'educational aid'?

The paper attempts to throw light on these questions through the study of traditional board games & trying to find out whether board games evolved as a child's play. The paper critically analyses the design approaches encouraged in design education for designing board games through a comparative pilot study. The paper will also attempt on the need of keeping the physical nature of a board game alive in today's digital dominance & letting "the board games being simple board games"!

Key words: Traditional board games, Education, Design approach, Evolution, Transitions.

1. Background

Indian culture finds its roots in the Harappan civilisation 4000years ago. The evolution of Indian culture has gone through many transitions & transformations from this period. So is the evolution of traditional artefacts (products) which originated due to some basic need. Board games are one such product which predominantly originated due to the basic need of 'means of entertainment'. Over the period board games have also transformed extending its basic

needs to perform an anchoring role in its association in social interactions & education. The aim of the study is to analyse the transition & transformations in association of board games with education. These transitions will be discussed through analysing the evolution of the board games.

2. Introduction
2.1 Evolution of board games

The origins of board games can be found in Mohenjo-Daro - Harappa archaeological excavations (Rogersdotter, 2011). It is however fascinating to see its presence in all phases of Indian history through historic, archaeological & literary evidences. Historical research has seldom looked in to the reasons of evolution of board games as a product. It is but obvious that the board games have originated with the need of killing spare time, which is more contextual to prosperous classes. We thus see references of traditional Egyptian or Mesopotamian board games in context to nobles. (Example: Senet, Fox & Hounds, Royal game of UR). Another scenario which can be visualised is, peasants relaxing & engaging their minds after a daily hard work over a game on board as a means of entertainment (Finkel, 2006).The games must also have triggered social interaction amongst the group playing a game over the board. Thus 'means of entertainment' & 'means of social interaction' were the main needs for evolution of board games.

The Vedic references (lament of a gambler – Rigveda - (Griffith, 1896)) also show 'gambling' as another reason for playing board games. If it cannot be considered as a need, it at least contributed in popularising the board games.

2.2 Evolving contextual variations of board games

Evolving through these basic needs, the board games developed in a complete new array of games in different civilizations. The reasons for these variations were mainly the context in which they were played with. The association of different rituals to the way a board game is played, for the time and space when and where the board game is to be played, defined elaboration of this contextual variation in the game.

The Indian examples for these ritualistic associations include the famous game played in Mahabharata as a part of a ritual in the Rajasuya Yadnaya. The Gambling games played on Diwali as a ritual & the *paramapadam* game played on the night it off of Shivratri (Balambal, 2005). The Western examples include the games played as part of the harvesting season and the games associated with burial rituals (Hall, 2016).

Board games played in context of education where mainly the strategy based games played as a part of war training, example: Chaturanga. There is mention of necessity to play board games as a part of political and military training in the writings of Socrates (Bakewell, 2018) and even Kautilya or Chanakya (Shamasastry, 1956)

Board games such as the Moksha pat and its versions have been used as a part of spiritual training in different phases and in different religious cults of Indian history (Topsfield, 2006).

3. Objectives & methodology

The paper establishes following objectives:

1. Analyse whether board games evolved as child's play?
2. Investigate reasons of transformation of board games as a child's play commodity.
3. Examine association of board games in modern period in India.
4. Validate perception of board games as educational aid in India.
5. Demonstrate the potential of traditional board games to be developed in today's/present context.
6. Evaluate design approaches encouraged in design education for designing board games.

Methodology

Stage 1: A synthesis of evolution of board games & its association with education through literature survey was done.

Stage 2: Analysis of design approaches followed in board game design by students, from the insights of conducting the board game design course.

Stage 3: Comparison of two approaches by short sampling through prototypes was done.

4. Synthesis through literature survey

4.1 Did board games evolved for children?

It is interesting to note here that there are hardly any examples of board games being a product exclusively used by children. Moreover, when we look at the visual references through the cave paintings, the cave sculptures and, Mughal and Rajasthani miniature paintings, we hardly see any depiction of children playing board games (Soar, 2006). This raises the question whether board games evolved as a child's commodity? We often see examples of toys used by children, references of which dates back to the Harappa civilization where there are examples of terracotta toys for children ('Toys and Civilization', 2017). The similar aspect is seen in western culture, where there are hardly any visual references of

children playing board games. (One exceptional example of a Terracotta piece in Athens museum where three figures are shown playing a board game, out of which two surely is children. (*Terracotta figurine group of three figures playing a board game (no.54). From Athens.*, 1st Century A.D.))

Memorial references of present day senior citizens (age 60 and above) mention they played some of the board games during their childhood. But still it does not date back to more than later part of the 19th century (predominantly post industrial revolution).

4.2 Association of board games with children

What reasons triggered board games to be transformed and get associated with children?

The mediaeval period in India can be considered as the golden period for the board games. Board games in general got Royal patronage and flourished. Moreover, in some cases, the royals developed new variants of game play & elaborated the boards by introducing rich Indian crafts for the same (Jaffer, 2006). The colonial period in India however, changed the board games into more as a gifting item. There are many references of Indian kingdoms gifting the British officers with highly elaborated game boards and game pieces. One can also refer to the advertisements in European newspapers during the same period to see the demand of these crafted game boards in the European market.(Advertisement for Vishakhapatnam chessmen: Madras Courier, January 23, 1816; retrieved from: (Jaffer, 2006), pg 139.) This made many board games popular in Europe and America which were from other colonial countries.

Somewhere the climatic conditions of Europe also helped in some way to popularize these board games with children. Imagining a scenario of harsh winters with no outdoor play possible for at least three to four months, the board games provided a very fruitful alternative as an indoor play for children (Parlett, 2018). This I think created the need which the industrial revolution capitalised by introducing mass manufacturing techniques. The easier the production process, cheaper the board games became and thus were economical to be handed over to children as a play a commodity.

There were many social transformations in India which also triggered the decrease in popularity of traditional board games. The colonial period in India witnessed the evolution of printing techniques. The introduction of newspapers in India provided a new way of information and means of spending time ('History of Newspaper in India | IILS Blog', n.d.; 'History Of The Newspapers Of India', 2017). The village choupals, where people generally used to come together & play board games started becoming public reading spaces of

newspapers. The political unrest gave many different topics to talk and think about along with newspaper reading which may have led to a decrease in the popularity of board games.

The MacAulay education system in India also altered the viewpoints of newer generation about acceptance of traditional beliefs. The new 'structured' education system imbibed an attitude of rejecting the old (*Macaulay's Minute on Education, February 2, 1835*, n.d.)

A constant political turmoil in medieval period affected the social & economic status of most of the population. The colonial rule also changed the economic conditions of people. Social acceptance of gambling changed with these conditions. Furthermore, the 'public gambling act' was enforced in 1867 prohibiting all forms of gambling & betting.(*Public Gambling Act, 1867*, 1867)

As the aspect of gambling reduced due to these conditions, the use of board games by men as a social activity reduced. It started becoming more of an indoor activity played mostly by women of all ages and children. This, in my views, broke the connection of board game activities with different type of spaces & created a perception of 'a product for children'.

5. Analysis of Board games and education through practical insights

5.1 Analysing transition in association of board games & education

The cognitive aspects in the strategy games like chess came in to limelight in 20th century. The focus on structured education of children through unconventional ways ('5 Alternative Teaching Methods', 2009) brought these strategy based traditional board games in the centre stage. In the contemporary (post WWII) period, the design fraternity got attracted by the social interaction that happens through the board games. Association of board games & education is not new to design field. There have been many experiments & explorations of attempting education through board games.('When "Snakes and Ladders" Stops Being Just a Game, Young Lives Are Transformed', 2017) (Jolin, 2019). Some were commercially successful; some were socially successful. Let's note here that, the objective of the paper is not to debate whether board games can be used as an educational aid? It has been universally accepted through many researches (Nakao, 2019; Riedel, 2013) that board games do prove to be a good educational aid ('What Board Games Teach Children In An Electronic Age', 2011). The point of discussion here is whether they are proving to be an effective educational aid? And if not, what is stopping them to be one?

The commercial popularity of board games in post-independence India sees a sudden rise in 70's & 80's. The presence of brands in the market like Leo toys, Mattle & Funskool were felt in the preceding years. The unorganised sector, the Mumbai cluster & the Delhi cluster,

rapidly acquired their respective shares in the market. The path chosen was simple & safe. Make a copy of the proven & successful board games with little bit variations & try to put them at much cheaper prize than the original. Plastic was thus an obvious choice. Certain strategies in the sales also helped acquire more chunks of market. However Indian traditional board games for some unknown reasons were not commercialised.(Mumbai Toy Project & NID,ICAMT,UNIDO, 2003)

The potential of board games with respect to education was realised & explored by the design fraternity & the NGO's. Developing board games as a design solution to solve a complex social issue or as a means of interaction for special population was encouraged in design studios & classrooms. The solutions of these kinds, in my opinion though were effective, were limited to a specific population, were batch produced & thus were seldom successfully commercialised.

Combining board games & education was a workable concept 10-20 years back, but, where does this concept stands in today's context? The rise of information technology & the rise of gaming technology reduced the effective commercial value of board games in Indian market at the turn of the millennium (Ref: Author's insights through Mumbai Toy Project 2003 based on unpublished minutes of meeting of project meetings). The explorations with respect to education though continued with in its own domain. Keeping aside the much discussed argument about effectiveness of digital verses physical games, the interactive nature of digital games did affect the user group towards them. We frequently observe a group of children in residential societies socialising not at play or board games, but over a game on respective mobile phones. A sudden fatigue & boredom from technological explosion though has shifted the focus back to physical board games over last few years.(Bhatt, 2019)

How has the concept (of associating board games & education) transformed in current context? The cognitive benefits from playing board games are un-debatable. The physical nature of board games has more benefits of social interaction than the digital board games (*The rebirth of board games and the new social revolution | Drew Blas | TEDxTopeka*, 2015). Playing board games though need/demand some values like patience, concentration, ability to sit at one place for longer time, ability to plan/negotiate, ability to strategies (Hejdenberg, 2005) [1].It needs to be researched whether these qualities are nurtured in newer

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[1] Hejdenberg (2005) argues giving reference of Mihály Csíkszentmihályi, a researcher in the field of positive psychology, the notion of "flow" – a state that he describes as "being completely involved in an activity for its own sake. Your whole being is involved, and you're using your skills to the utmost." People who have played games can most likely relate to this feeling. And Mr Csíkszentmihályi has come up with a list of eight things that are associated with "flow" or "being in the zone" as it is often described.

generation to make them able board game players? If at all these qualities are reducing, it will support the reason for reduction of commercial value of board games.

5.2 Are board games in India seen more as an 'educational aid'?

With reduction in use of board games for social interaction, does aiming or attempting educational goals through board games work today? Why educational board game market in India is restricted to social / community based learning domain? Do the root cause lies in the way board games are perceived in India? Are board games in India seen more as an 'educational aid'? More than the way the board games are designed in India, I think the perception of them is built by the way they are marketed. It's very interesting to understand the complex marketing channels for board games in India. The dominance of the distributor & the retailer in the system pressurises the board game manufacturer or designer to promote the cognitive gains from the board game (Mumbai Toy Project & NID,ICAMT,UNIDO, 2003).

Figure 1: Promotion of 'Ludo' (Pachisi) on website highlighting the educational benefits from the game as skill sets.

Thus most of the board games try to promote the cognitive or educational values along with the entertainment aspects of the game. This creates the perception of the board game as educational aid. Even in case of simple traditional games, the branded versions focus on marketing the skill sets learned from the game.

Some researchers however have questioned the overall cognitive gains of the board games. (Dewar, 2012) argues,

> However, we can't assume that playing board games will make kids better students. Studies suggest that good chess players are better at recognizing and remembering certain on figurations of chess pieces. But chess experts aren't necessarily any better at recognizing patterns in other contexts (Gobet and Campitelli 2006). And while chess players tend to be more intelligent than non-chess players, the correlation may reflect self-selection: Smarter people may be more likely to play chess (Gobet and Campitelli 2006)
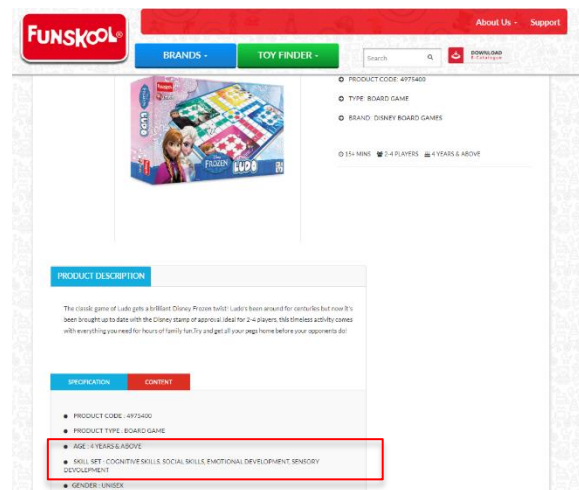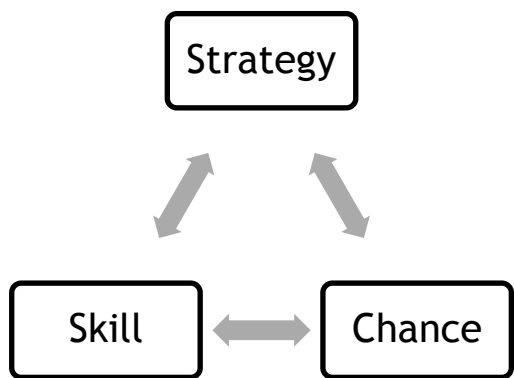
As discussed earlier, most of the board game designs happen in design classrooms as part of an educational project or for social needs as a part of a problem-solving solution for a community through NGOs or organisations handling social projects. An educational approach is followed & the solutions are never resolved for commercial production & are marketed or promoted through limited means.

6. Establish hypothesis for board game design approach
### 6.1 Evaluate design approaches for board game design

Most of the game theories mention the aspects of CHANCE, SKILL and STRATEGY to analyse a game. Same aspects are also suggested to position the game at its design stage. All games have these three factors in various proportions, contained within it. The correct mix of chance, skill and strategy in different proportion determines the suitability of the game for the targeted age group.(Ajith Kumar G, 2010)

A methodical board game design approach would follow the steps of positioning the game along these aspects, conceptualise on the theme, the mechanics & then the aesthetics. The prototyping phase is expected by choosing a suitable production method. Then follows testing, refinements & final design.

Model 1: The Strategy, Skill, Chance model

The same process drastically changes when the game is thought as a solution to solve a social problem. Here the design brief defines the outcome expected from the board game (example – a board game to educate children about toilet hygiene). Here the process becomes more linear & rigid. Many design briefs with clear
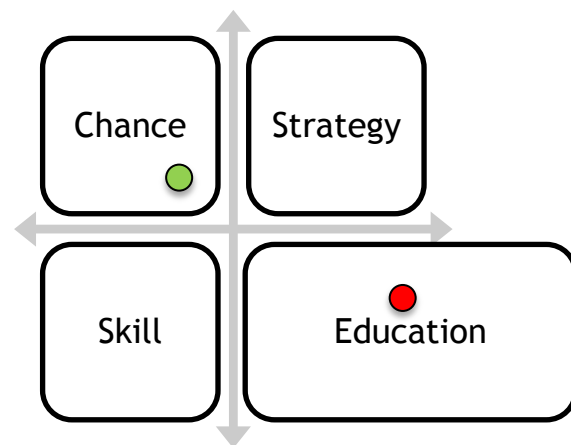
Model 2: The modified model with inclusion of Education

educational outcomes change the triangular model of CHANCE, SKILL and STRATEGY to a

quadrangle with the domain of EDUCATION added in it. With the focus on effective marketing as mentioned before, this domain is further increasing its decisiveness to positioning of a board game.

6.2 Sample survey for understanding design approaches for board game design

Sample survey was conducted while conducting an elective in board game design (from 2008-18) at MIT Institute of Design, Pune on an average student number of 10 every year. Some interesting insights about design approaches that student designer's follow, were observed.

1. In India, where traditional design education has been classified in to Industrial Design & Communication Design, it's the first confusion for students where to categorise board game design? They take time to understand that board game design needs interdisciplinary skills.
2. Incorporate a strong educational aspect & develop it for a social need. The board game stands out on moral ground but is seldom taken for commercialisation.
3. The student designers are highly influenced by an existing game they have played or have seen through internet. The new design thus is not able to break the traces of the existing game.
4. Taking the safest route, redesign a race game with new theme & incorporation of features of some other games.
5. The 'American' way, introduce cards of different types & complexities, various types of coins, pieces & inevitably increase the inventory. The board games developed on these approaches become too complex to perceive.
6. Following the 'designer's attitude', by considering what is done is correct & not being open to any criticism or try outs.

6.3 Summary & Suggested modified approach

The analysed deficits of the popular design approaches have resulted in suggestion of the modified path. With respect to the possible short falls of approaches discussed above, what is the modified approach?

1. Appropriate promotion of & marketing with social media. With effective use of social media by start-ups, this in my opinion is already happening.
2. Change the user from children & special population to general population & older age groups.

3. Explore traditional board games as they have sustained over time period, they have the potential.

4. Over exposure to board game needs to be channelized properly while designing new games.

5. Respect the designer – board game design is just not graphic design job as it is often perceived.

7. Comparison of two approaches by short sampling through prototypes

Following methodology was adopted to discuss the comparison of both the approaches:

- Rather than evolving new board games, traditional board games were explored due to their acceptance & understanding of game play.
- *Pachisi/Choupar* was taken as being the popular traditional board games.
- A variation of *Pachisi* with educational aspects included in game play was developed. (due to the educational aspects the age group selected was 8-12yrs)
- Another board game from *Pachisi* without educational aspects, focusing on Strategy, Skill & Luck was developed. (non-inclusion of educational aspects allowed modification of age group from children to elder ages)
- The board games were played with & observations noted.
- Initial conclusions were evolved.

Shortfall of the methodology:

Sample size is not sufficient to arrive at the decisive conclusion. Independent variables should be controlled.

7.1 Pilot sampling of suggested approaches through two board game designs

Following is the example of the modified approach developed for board game design.

Figure 2: Ludokshetra, a game based on mythological characters without defined educational aspects

Figure 3: Ludomathics, a game to facilitate computation of simple mathematic

The examples were produced during open elective course on board game design at MIT Institute of design, Pune from 2009-18.

Design approach followed included subsequent steps-

- Analysis of a traditional board game was done by playing repetitively the game & understanding the short falls of the game play with respect to today's context.
- Understanding user needs with respect to targeted user group.eg: For age 10-30 years a quick play was required.
- Decision on inclusion of education as per decided brief.
- Selection of appropriate themes to make the game play more interesting.
- Emphasis was paid on maintaining the Indian ness.
- Performing trials through mock ups.
- Make final prototype based on refinements required after observations from trails.

7.2 Observations & inferences

Both the approaches resulted in workable design solutions. Both the games were well accepted in respective user groups. *Ludokshetra* was complicated to understand initially but was rated to be more creative. *Ludomathics* was easy to understand but needed a mentor to conduct the game play. The defined constraints of educative goals & use of a parent traditional board game made the design process more rigid.

Though the game *Ludokshetra* got positive feedback in the selected user group, it was not feasible for commercialisation due to characterisation of God's & Goddess in the theme which would have affected the cultural beliefs in India.

Ludomathics on the other hand lacked a graphic appeal for the selected user group. The response of parents was positive, but there was reluctance in repeated play by the user group.

8. Further Work ahead

As mentioned earlier, the paper just critically analyses the design approaches encouraged in design education for designing board games. The paper only discusses a possible direction which still needs to be verified & established through research. More such comparative briefs need to be experimented with to make a decisive conclusion. A care should be taken to

control the independent variables during the experimentations. Also probable field trials with more such games should be carried out.

9. Conclusion

Though a critical conclusion is not possible until methodical research is done, few insights are evident through the study. It needs to be noted that the research is not aimed at proposing a methodical process or a model to be followed for board game design process. In my opinion, the creativity should not be restrained to a specific methodology & frame work. Standardising the design process through a model will also standardise the board game outputs. More over the aspects of education are multi-layered & complex & their inclusion in a board game need a deeper synthesis. What matters most is the execution of the board game concepts. An innovative concept if not executed properly will fail to deliver the desired results. This highlights the Importance of mediator. The role of narration of the game rules & conduction of the game play by the mediator, remain significant factors to make the first impression of the board game & decide the success of the board game in achieving the results. Eventually, when educational aspects are included in a board game, his role is most decisive.

Finally it would not be wrong to conclude that it's not necessary to forcefully attach educational aspects & goals in a board game & *letting the board games be simple board games*.

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