Game-based Learning: Teaching of Radhasoami Satsang Culture through a Board Game

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Abstract

Despite the massive strides that science has taken in the past few years, there is a paucity of effective learning tools for culture and heritage, with parents and educators mostly relying on books and rote moral education classes in schools. Learning could be enhanced, if children are able to learn in a fun and interactive way, at their own pace and through self-led play.

As volunteers at the Children's Recreation Centre, Bangalore Branch, we identified more acutely with this gap when taking Radhasoami Satsang Education and Culture classes for the children (aged 7-12. As parents and mentors, we struggle to deliver lessons in innovative ways that can capture their imagination while sharpening their intellect and skills at the same time. The urge to devise a board game that could combine the evergreen charm of games like Monopoly, Ludo, Snakes & Ladders, Candyland and Cranium and other quizzing games with culture based knowledge led to the idea of 'Seeker's Path'.

The basic idea of this game is for a player to advance through paths on a game board based on a combination of luck and knowledge of the Radhasoami Satsang history, values, and culture, the final destination of each player being Satsang Hall (main place of worship). This game is designed so that it can be enhanced as time progresses as well as tailored to branches/regions by adding local knowledge. Our design considerations were informed by an extensive literature review into game based learning and learning systems.

We agree with the thought that more often than not, the best book cannot teach what a child learns when he/she plays a game. We hope this is a step in the direction of imparting our religious and cultural values and tenets in a more engaging and inspiring format.

Keywords

Game based learning, Learning Systems, Game Design, Board Games, Radhasoami Satsang Culture

Introduction

The impact of technology and gadgets on modern life and all its aspects is difficult to ignore, and this means that we have been bombarded with options for each thing we do, though in both good and bad ways. Education, too, has not been unaffected by this gadget blitz. There is no dearth of applications in electronic media that are supposedly backed by research and exert frantic claims to help the development of some skill or the other in children. Yet, there is a paucity of effective learning tools for culture and heritage, with parents and educators mostly relying on books and rote moral education classes in schools.

In our experience as volunteers at the Children's Recreation Centre, Bangalore Branch, we identified more acutely with this gap when taking Radhasoami Satsang Education and Culture classes for the children (aged 7-12). It can sometimes be a challenge for children, who are being brought up outside of Dayalbagh to understand and appreciate our cultural heritage. As parents and mentors, we also struggle to deliver it in engaging and innovative ways that can capture their imagination while sharpening their intellect and skills at the same time.

Sometimes, the best book cannot teach what a child learns when he/she plays a game. That is not to say that academics are overrated and should not be focussed upon. It just means that if holistic education is the target then educators need to think out-of-the-box. Learning could be enhanced, if teachers can combine the power of academics with those of play, for instance, if children are able to learn in a fun and interactive way, at their own pace and through self-led play.

"It should be noted that children at play are not playing about; their games should be seen as their most serious-minded activity." - Michel de Montaigne, French Philosopher

Science supports many of our intuitions about the benefits of play. Playful behavior does appear to have positive effects on the brain and on a child's ability to learn. In fact, play can function as an important, if not crucial, mode for learning.

"Play is really important for young children, for social and cognitive development," says psychologist Kathy Hirsh-Pasek, PhD, a child development researcher at Temple University. Researchers argue that the trouble is that parents and educators are ignoring decades of evidence that young children learn best through exploratory play rather than through lecture-style classroom instruction, and push-button computer learning toys that can push them to memorize facts that they're not cognitively ready to understand.

Motivation: Exploring Game-Based Learning

Game Based Learning (GBL) is a type of gameplay that has defined learning outcomes. Generally, game-based learning is designed to balance subject matter with gameplay and the ability of the player to retain, and apply said subject matter to the real world.

Game-based Learning incorporates game dynamics traditionally seen in board games or video games to teach students. There is often a competitive element which motivates individuals to perform better relative to their individual previous performances when compared to their peers. Learning is typically structured around achievements, levels, badges or other progression mechanisms.

Literature Review and Objectives

In our literature review into game based learning, we looked at two aspects of the current research, i.e.

i) Whether there are clear indicators and conditions that support game based learning as a technique for teaching
ii) What are the design considerations that we should take into account to design an effective learning system

Game Based Learning

There is extensive research that supports learning through play, especially with reference to games. Studies show greater retention and application of knowledge learnt through games (Lepper and Cordova, 1992). This is especially true if there are intrinsic rewards and motivational embellishments made to the game. Lepper and Cordova (1992) show that adding different fantasy contexts (for example, 'Kill the Lion' or 'Save the Baby Mouse') aided in motivating 3rd to 5th grade students to master the Cartesian coordinate system, by asking them to specify the area to be fenced off via Cartesian coordinates. The rewards of the game (killing the lion or saving the baby mouse, successfully) come directly out of learning to work with the Cartesian coordinate system.

Good games also serve as an experiential learning tool, immersing the player or team in their specific world, and allowing them to create experiences associated with that world (Gee, 2008). The player then has the ability to read a textbook on the same subject and relate words/jargon to specific context or experiences. However, learning from experience can take a lot of time and learners can fail to know what to pay attention to in their experiences. The best way to harness experiential learning, is to ensure that the learning is well designed and mentored.

Moreover, good learning is a system (Gee, 2008), in which minds, bodies, times, places, language and tools interact in complex ways. The end goal is not necessarily to design a game,

but a system in which we can motivate and drive a desire to learn in the students. Such studies hope to inspire teachers to see teaching as designing, resourcing and mentoring learning systems, using a variety of tools, of which games (as described in the traditional sense) are just one.

In the end, the goal should be that learning be made a play and a recreation to children and that they might be brought to a desire to be taught (Locke, 1693).

Principles of Game Design

Once it was clear from the research that there is an established basis for game based learning to be incorporated as a teaching tool, we looked at what design considerations we should look at when we go about designing such a game.

According to Gee (2005), there are 16 parameters that he mentions that one can consider in the design of good games. These are elucidated briefly in the table below.

Table 1: Learning Principles/Design Characteristics that Good Games Incorporate

Design Characteristic	Description
Identity	Players make an extended commitment of self to the game, by inheriting a strongly formed and appealing character, or making their own
Interaction	Games talk back. Nothing happens until a player acts and makes decisions.
Production	Players co-design games by the actions that they take, and decision they make.
Risk Taking	By lowering the consequences of failure, players are encourage to take risks and try new things.
Customization	Customize the game to fit their learning or playing styles.
Agency	Players feel a sense of control and ownership over the game (thanks to preceding characteristics).
Well Ordered Problems	Problems faced by the player are ordered so that they can build knowledge for later, more difficult problems.
Challenge and Consolidation	Game constantly throws new problems at player, allowing them to build expertise and then be challenged by a new level of difficulty. This cycle is called the ‘Cycle of Expertise’.
Just In Time and On Demand	Games give verbal information either just in time or on demand, when the player feels the need for it, or

	can make use of it.
Situated Meanings	Actions, images or dialogues are related to words, which help player make better sense of them.
Pleasantly Frustrating	Games feel doable but challenging, which is highly motivating for players.
System Thinking	Encourage players to think about relationships and not isolated events, facts and skills.
Explore, Think Laterally, Rethink Goals	Encourage players to explore thoroughly, and think laterally and not just move linearly towards goals.
Smart Tools and Distributed Knowledge	The characters/tools in the game are "smart tools" that have skill and knowledge of their own to lend to the player.
Cross Functional Teams	Players, each bringing a different set of skills, play the game together.
Performance before Competence	Players can perform i.e. play the game, before they are competent in the knowledge, supported by the design of the game and other players.

Of particular interest in the context of the board game that we designed were the principles of:

- Identity
- Interaction,
- Production,
- Customization,
- Challenge and Consolidation,
- Pleasantly Frustrating,
- Cross Functional Teams and
- Performance before Competence.

All these principles helped us to make important design decisions about how the game should be structured and played.

Another important lesson came from Lepper and Cordova's (1992) studies on intrinsic rewards and motivational embellishments in games. They found that the learning objectives of the game need to be essential for winning otherwise the material can be ignored in favour of strategies to simply "win" the game. This informed the decision around the winning conditions and balances in the game that equalize players, ensuring that knowledge of the material is THE essential element required to win the game.

Lepper and Cordova (1992) also found that adding further "bells and whistles" that were unrelated to the learning objectives of the game actually adversely affected the students understanding of the concepts that were being taught. This made us settle on a minimalistic

visual design for our game, forgoing our previous idea of a building an elaborate 3D board for the game with lights and sounds.

About the Game

The idea for our game arose from a variety of concerns we found we all shared:

- The necessity to make the children more aware and appreciative of the faith they embrace and its rich meaningful history and tenets
- To do the above in a time-tested mode that was packaged in a way attractive to them
- To develop a tool that would not get dated, and would always be open to being extended as well as tailored.

Given how passionately we felt about game-based learning, we wanted to devise a board game that would exude the evergreen charm of games like Monopoly, Ludo, Snakes & Ladders, Candyland, Cranium and other quizzing games. And yet, a game that would fall in line with our philosophy and ideas about what would genuinely be beneficial to the children.

<u>"Seeker's Path"</u>

The basic objective we wanted to achieve was to impart knowledge of Dayalbagh/Radhasoami Satsang culture, history and values through the game. The basic format of this game is for a player to advance through a one-way path on a game board based on a combination of luck and knowledge of DB history, values, and satsang culture. The game can be played between 2-4 players, or in teams. The players advance on spinning a coloured dial and this progress is hampered or sped up by their ability to answer questions along the way. Questions are categorised into one of four categories, which are coloured coded to match the colours on the dial. The player has to answer a question from the colour category he/she gets when spinning the dial. The final destination of each player is Satsang Hall. The first player to reach Satsang Hall, and answer a question posed by the other players, wins.

The steps on the path are marked in the form of landmarks in Dayalbagh. However, the reason to do so is not strategic to the game play and does not have any bearing on the outcome. These have been done so to facilitate easy, engaging conversations between the mentors and players, that can make the whole session more participative and educational.

The player's exposure in this game ranges from Dayalbagh buildings and landmarks, to their history and onto the central tenets and values that define us as Satsangis. The game has been named *'Seeker's Path'* as it charts the path of a pilgrim who is on his way to the prayer hall or the Satsang Hall. The use of word 'Seeker' is a dual reference. On the face of it, this refers to the player of the game who is navigating a path fraught with challenges in terms of the trivia questions he needs to answer to be able to reach his destination before anyone else. This is shown simply as a person desirous of attending Satsang arriving in Dayalbagh and figuring out

the different paths/areas that eventually lead him to the Satsang Hall. The second and more spiritual/subtle reference is to a Satsangi who is keen to stave off all the challenges of this mortal life, and reach the Sat-sang (the Company of The Satguru) or Ultimate Abode.

Game Design

Simplistic, packed with gems of knowledge that children would discover each time they played, adding an element of chance to add to the thrill, allowing for competitive play in team or individual mode, and more significantly, growing in knowledge with the children - all these were attributes of our ideal game according to us. Over a span of many weeks, we put together a list of outstanding and appealing features from different games that we have grown up playing ourselves, and now see the children playing, as described in Table 2 below. We identified the strengths and attractions of each game the way we saw them.

Table 2: Games surveyed along with their desirable features

Games	**Desirable features**
Ludo	Element of chance; Destination-based progression
Cranium	Trivia based format; Fast and slow Track
Candyland	Attractive path design; Use of colours
Snakes and Ladders	Progression and Regression
Monopoly	Element of chance; Equaliser pit stops
Trivial Pursuit	Trivia based format
Flipping Out	Spinning a dial (instead of dice); Trivia based format
Discover India	Trivia based format

This helped us focus on how we wanted our dream game to look and the sort of rules and mechanisms we wanted to put in place as per our understanding of what would work best for our objectives.

We also took into account several of the design parameters mentioned in Gee (2005), viz. Identity, Interaction, Production, Risk Taking, Customization, Challenge and Consolidation, Pleasantly Frustrating, Cross Functional Teams, and Performance before Competence. Table 3 on the next page describes the how the particular principle was implemented in the game design.

Table 1: Design Principles and how they were applied to Seeker's Path

Design Characteristic	How It Was Implemented
Identity	Players can strongly identify as a Satsangi arriving in Dayalbagh and finding their way to Satsang Hall.
Interaction	Multiple interaction mechanisms, from selecting question categories, asking and answering questions and spinning the dial are used.
Production	Players take an active role in asking each other questions and choosing different categories at the pit stops.
Risk Taking	By presenting Satsang Knowledge in the form of a game, some of the negative associations of quizzing and learning texts by rote is removed. Players have more freedom to learn and low penalties for answering incorrectly.
Customization	Customization of the game is possible through making additional question and answer cards, be it by the players themselves or by administrators of the game (teacher)
Challenge and Consolidation	The game can offer varying and increasing degrees of challenge simply by substituting the question cards with other, harder questions. Consolidation happens through the repeated playing of the game, thereby allowing the Cycle of Expertise to persist.
Pleasantly Frustrating	Not knowing all the answers to the questions or the element of chance that spinning the dial brings provides challenge but at the same time brings fun to the game.
Cross Functional Teams	Playing in teams enhances the quality of learning by allowing different players to contribute their diverse knowledge to the winning of the game. It also is observed to increase the fun factor.
Performance before Competence	Players can start playing immediately, with little to no prior knowledge. They need little to no prior instruction in the material.

Design Details

This game is designed so that it can be enhanced as time progresses and as new events unfold. Since all the information will be in the form of cards, new information can be added simply by adding new cards to the game.

Visual and Presentation

The design aims to provide an attractive and contemporary feel to the game. The storyline is based on welcoming the players to Dayalbagh and its vicinity, introducing the various landmarks in the colony via the game board, eventually reaching the Satsang Hall.

Geographical Layout

We made a choice to map locations in Dayalbagh so that players get a feel for the geographical layout of the colony. Satsangi children are able to relate the places on the board to the Dayalbagh areas that they have either visited or heard of.

Spinning of the Dial

Constraints are placed on the progress of the players, by adding an element of chance/luck in spinning a coloured dial. It was felt that the game flowed better for the purpose of four trivia categories as represented by four colours and a facility to 'roll-a-colour'. Incorporating a dice would have meant use of numbers which weren't really required and then a mapping would have had to be drawn from six numbers to four categories. It was concluded that a dial spin across four coloured quadrants or like would yield the desired result in a more effective as well as engaging manner.

Fast/Slow Tracks and Pit Stops

The progression is made across one of two paths. The faster track offers less steps and hence less questions to be answered while the slower one lays down more steps and hence more questions to navigate. Three equalising pit stops are provided to help a slower player/ team to get a chance to catch up with its faster opponent and vice versa. These pit stops provide the opportunity to switch to a slower or faster track based on the question at the threshold. A single decision point at the beginning of the game was thought to be inappropriate. It would have become demoralizing for the player/ team that lost the first qualifying question to continue with the game. Three such decision points means that there are that many chances for a player or team that might have initially got stuck on the slower path to still have a stab at switching to a faster path.

The first player or team to complete the route on the board and reach the final destination i.e. Satsang Hall, wins.

Customisable design

This game is designed so that it can be enhanced as time progresses and as new events unfold. Since all the information will be in the form of easily-printable cards, new information or complexity can be added simply by adding new cards to the game. Most games that deal with general knowledge usually run their course once time passes and the information they offer becomes outdated/ irrelevant. 'Seeker's Path' has been consciously given this format that prevents it from falling prey to a similar fate. To be clearer, this facility can be useful in many ways.

- Once a group of children playing the game periodically have reached a certain minimum level of knowledge, the level of difficulty of questions asked can be increased.
- It can also be tailored to branches/regions by adding local knowledge and history.
- As Dayalbagh forges ahead and crosses further milestones, new questions can be added that are related to the latest events, dates etc. so that the game never languishes as dated.

Mechanics

A detailed chart describing the game flow is given in the figure below.

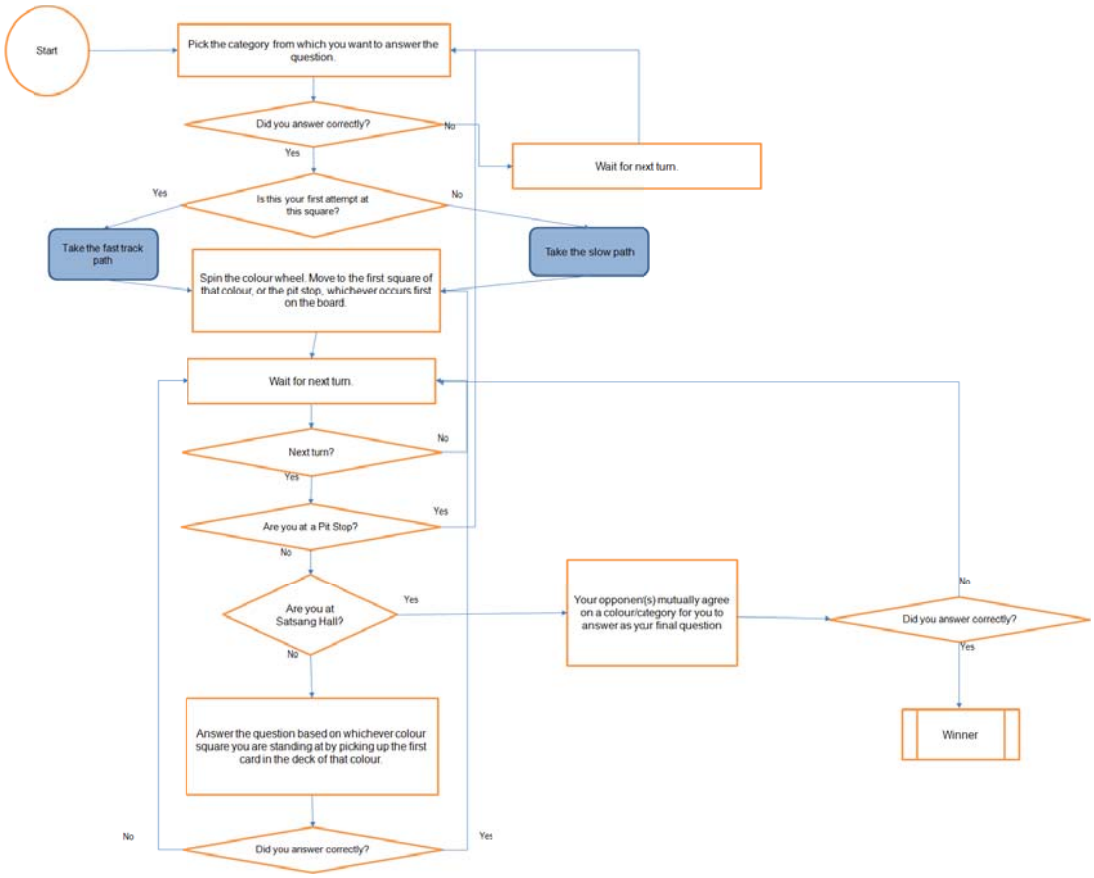


Figure 1: Game Flow Chart

Game Play Observations

After designing and producing a prototype of ‘Seeker’s Path’ (pictures shown in the appendix) we conducted 2 play sessions in which we observed how children (ages 8-12) interacted with the game and also conducted pre- and post quizzes to see if we could measure the knowledge delta that they gained by playing the game. Since the game has only recently been prototyped, and there are certain implementation pieces still to be firmed up, it has only been played on limited occasions.

A description of the play sessions is below.

Play Session 1
Location: MTVPuram
Number of players: 2 children
Age range of players: 9.5 - 11 years
Mode of play: Individual
Date: June 21, 2015

- Children were particular about the choice of colour for their pawn
- Mention categories of the top of the card
- Children showed knowledge of some of the answers after the first play
- Game can be conversational - we could ask some questions to direct further learning from either the question itself or the game board.
- Enjoyed seeing each other switch to slow track
- Judgement of Partial Answers was made the opposite player’s prerogative - they gave what they got

Play Session 2
Location: Bangalore
Players: Eight CRC Children
Age range of players: 8 - 12 years
Mode of play: Two teams of 4 children each
Date: July 19, 2015

- Children were once again particular about the colour of their pawn

- Did not take long to understand the game flow
- Enjoyed seeing each other answer incorrectly
- Prior knowledge of the content gave way to smoother and faster game play
- Actively avoided picking date category of questions, where given a choice
- Did not notice the landmarks marked on the game board itself
- Children were particularly enthusiastic about the spinning dial. (A dice was not missed at all)
- The equalising pit stops can be given better/useful and attractive descriptions.
- The children were unable to answer some questions that were twisted from the form in which they had been taught earlier.

For the second play session, we administered pre and post quizzes for the children. We ensured that no prior intimation of the pre-game quiz was given so as to test their base knowledge on the subject. The post-game quiz was administered a week later without any encouragement of revising or reading of the material in the interim. We found close to a 15% increase in the marks scored by the children post-game quiz as compared to pre-game.

Conclusion

The observations and results of the quiz above, coupled with the genuine fun the children appeared to have in playing the game, makes us very hopeful that this system of learning will work well in providing an alternative way for imparting knowledge of Radhasoami Satsang culture, values and heritage. The players' knowledge will enhance through repeated playing of the game and depending on the abilities of different players, each player will develop his own niche area of strength and expertise over time.

We look forward to enhancing Seeker's Path so that it is not only a game, but so that, in the words of James Paul Gee, it can serve as a complete learning system.

References

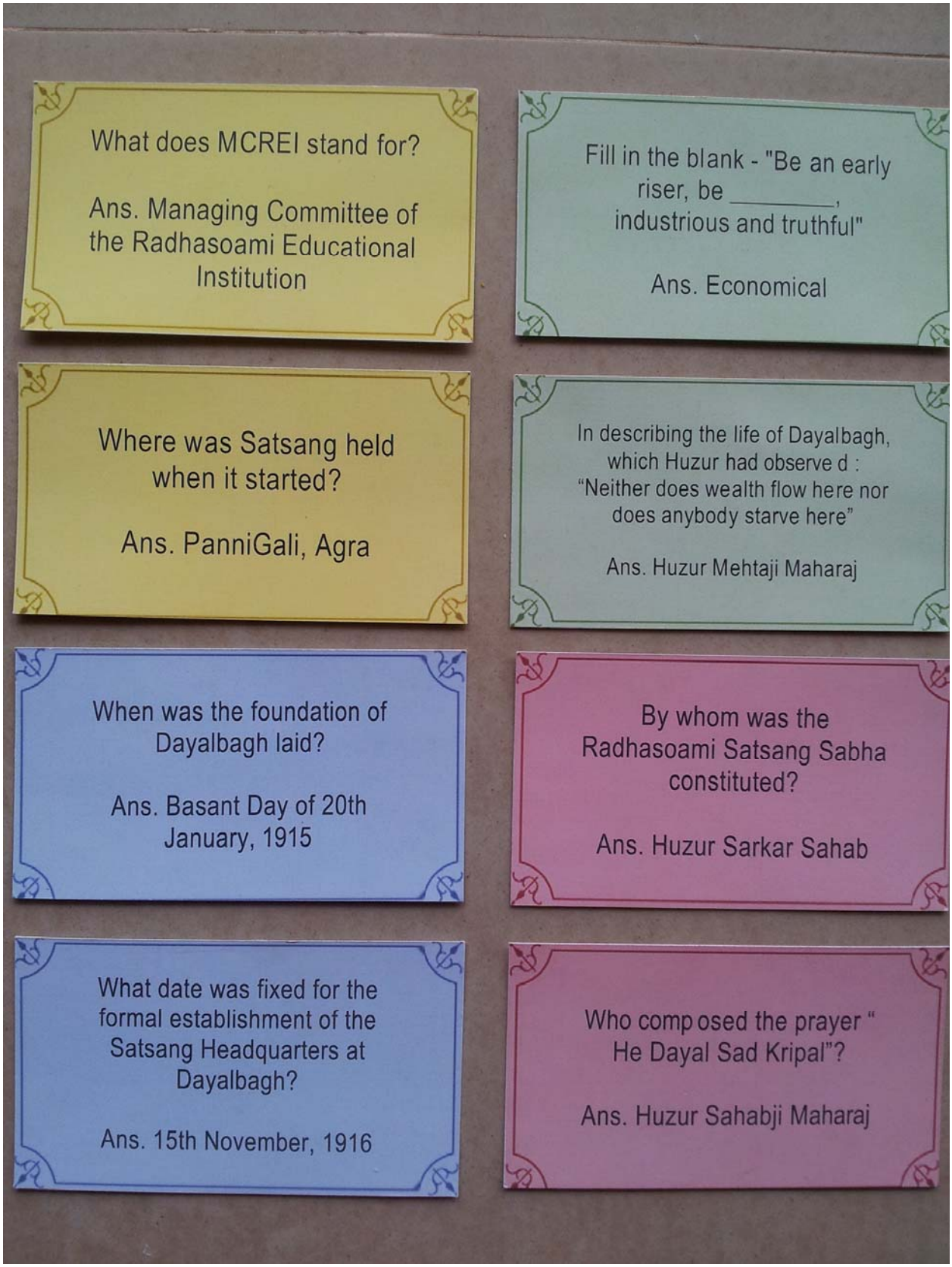
[1] Lepper, M. & Cordova, D. (1992). A Desire To Be Taught: Instructional Consequences of Intrinsic Motivation. *Motivation and Emotion,* Vol. 16, No. 3.
[2] Gee, J.P. (2008). Learning Systems, Not Games. *White Paper. New York: The Joan Ganz Cooney Center at Sesame Workshop.*
[3] Gee, J.P. (2005). Good video games and good learning. http://jamespaulgee.com/pubdisp.php/?id=0&scateg=Video+Games. Retrieved August 1, 2015

Appendix

Screenshots of some of the game parts as they currently stand

A. The Game Board

B. The Trivia Cards



C. The Spinning Dial

D. A section of the board showing the Dayalbagh landmarks