Findings

Chapter – 5 : Findings

5.1 Introduction

This final chapter of the present study briefly reports on the research. The need and significance of the research, a statement of research objective objectives, theory, assumptions, research classification, research processes, data analysis system, findings, and further research proposals are presented in this chapter.

Institutions of higher learning focus on preparing future professionals to achieve the same and new teaching methods are often used, including games and simulations that form the basis of this research. The main purpose is to learn the effect of games and games on achieving specific learning objectives. On balance, the results show that games have a positive effect on learning goals. The researcher identifies two learning outcomes, in which he integrates games into the learning process - Comprehensive Skills and Success.

A previous study published suggests that video games have certain cognitive benefits. Researchers used fMRI - Functional magnetic resonance imaging to measure brain activity by detecting blood-related changes - and found that gamers could filter out non-essential information. According to research, non-gamers use their frontal-parietal network more than gamers - strangely enough, this can be detrimental. The study noted that players often "allocate attention spans automatically, possibly allowing premature screening of non-essential information." Another study at the University of Washington-Madison, found that video games improve a person's ability to follow directions and solve problems. Specifically, he notes that "good video games incorporate good learning principles ... based on current research in Cognitive Science."

After playing some video games himself and watching others, it was discovered that people who play these games often want to improve their gaming skills. But to do so, they must follow the guidelines, exercise, and work to overcome their weaknesses. The school has a similar challenge. Students must follow instructions and practice their academic skills to get good marks.

Similarly, multi-video video systems require players to reach one level to reach the next. As players progress, they often have to solve problems - and this mimics the classroom environment, where you have to develop ideas and creative solutions to problems. Educational motivation has always been a hot topic. In a society where we offer many students external awards, such as grades, many children study for an exam or an "A." Most of the time, they have no inner motivation - learning for the sake of learning. This is a problem - many studies have shown that the inner motivation and interest of students in education leads to better outcomes. In short, students are more likely to read if they are interested in the subject. Researchers have noted that children who play video games almost daily have an average of 1.75 odds of working and 1.88 increased overall performance. The study also found that children who play video games appear to have fewer relationship problems with their peers. Now that is a very good collaboration tool.

5.2 Gamifying education: What is known, what is believed, and what remains uncertain

Educational development is a progressive way to increase student motivation and engagement by integrating game design elements into learning environments. With the growing popularity of game production and the mixed success of their use in educational contexts, the current review aims to provide more practical enlightenment in the field research by focusing on stronger evidence rather than focusing on potential, beliefs, or interests. Therefore, it critically evaluates the educational progress of the game.

The concept of mobilization is not new but the word "gamification" did not appear in general terms until 2010. After only a year it became a practical practice. The growing popularity of game production stems from the belief that it can be motivated, by behavior change, friendly competition, and cooperation in a variety of contexts, such as customer engagement, staff performance, and community loyalty. Like any new and promising technology has been implemented in a variety of fields, including marketing, health care, human resources, training, environmental protection, and wellness. Gamification is a multidisciplinary concept that combines a range of theoretical and applied knowledge, technological domains, and forums and is driven by a range of practical motives (Seaborn & Fels, 2015). To better capture the origins of original concepts and processes, the term gamification is defined in several ways, such as "the use of game design elements in non-gaming contexts" (Deterding, Dixon, Khaled, & Nacke, 2011), Sarsa, 2014), or "game-making process" (Werbach, 2014). Power work in all fields has begun to explore how gamification can be used in specific contexts and what effect gamification has on human behavior and experience in the short and long term.

Since its gamification development, it has sparked controversy among game designers, user experience designers, game theorists, and researchers in human-computer interactions (Mahnič, 2014). This argument is also evident in other scientific studies of gamification, which show that its effect on motivation or participation is lower than expected caused of hype (Broer, 2014). However, great efforts have been made to take advantage of the encouraging benefits of the game's methods.

One important area in which sports performance is actively tested (mainly because of its motivating potential) is education. Inspiration is among the most important predictions of academic success, influencing the effort and time a student spends learning (Linehan, Kirman, Lawson, & Chan, 2011). Considering that games, which are known for inspiring motivation and engagement, are remarkably popular, the proposal to integrate game mechanics and student motivation.principles is appealing. Gamification in education means the introduction of game design elements and exciting experiences in the construction of learning processes. Adopted to support learning in a variety of contexts and learning areas and to address related attitudes, tasks, and behaviors, such as participatory methods, collaborations, self-study, completing assignments, making assessment easier and more effective, and integration. of assessment methods for learning, and strengthening student intelligence and retention (Caponetto et al. 2014). The rationale behind the learning of the game is that adding features, such as those found in games in learning activities will create immersion in the same way as happening in games (Codish & Ravid, 2015). This leads to the belief that by integrating game mechanics into the development of a learning process, we can engage students in effective learning, and generally, change their behavior in a desirable way (Holman et al. 2013). However, the design of successful educational game programs that can support targeted behavioral changes is still a practice of speculation rather than science. One important area in which sports performance is actively tested (mainly because of its motivating potential) is education. Inspiration is among the most important predictions of academic success, influencing the effort and time a student spends learning (Linehan, Kirman, Lawson, & Chan, 2011). Considering that games, which are known for inspiring motivation and engagement, are remarkably popular, the proposal to integrate game mechanics and student motivation principles is appealing. Gamification in education means the introduction of game design elements and exciting experiences in the construction of learning processes. Adopted to support learning in a variety of contexts and learning areas and to address related attitudes, tasks, and behaviors, such as participatory methods, collaborations, self-study, completing assignments, making assessment easier and more effective, and integration. of assessment methods for learning, and strengthening student intelligence and retention (Caponetto et al. 2014). The rationale behind the learning of the game is that adding features, such as those found in games in learning activities will create immersion in the same way as happening in games (Codish & Ravid, 2015). This leads to the belief that by integrating game mechanics into the development of a learning process, we can engage students in effective learning, and generally, change their behavior in a desirable way (Holman et al. 2013). However, the design of successful educational game programs that can support targeted behavioral changes is still a

practice of speculation rather than science. The model is intended to represent the level of maturity and acceptance of certain emerging technologies. We maintain the view that gamification is not just a technology but also a method that some organizations take as a way to increase motivation. In this regard, gamification is not only a marketing trend but a moral/functional design trend that can be used in a variety of contexts, including education. Thus, gamification is also a growing area of research. However, research efforts and trends should be conducted and evaluated based on different factors. So the model is used here figuratively and as a comparison model. We borrow it to reflect noted trends in emerging research areas, showing some types of 'high expectations' and 'enlightenment'.

Gamification is growing as an area of both practice and research. The majority of the studies reviewed in the previous sections lack a theoretical underpinning that can help understand the researchers' motivation and the justification for how their gamification approach is supported by a theoretical framework. For completeness of the review, in this section, we outline theoretical works underpinning the use of gamification in education, published within the review period. Overall, the bulk of theoretical research addressing gamification maintains that focusing on points and rewards rather than on play and intrinsic engagement cannot always meet the goal of desired behavior change by catering to the intrinsic values of learners (Hansch et al., 2015; Songer & Miyata, 2014; Tomaselli et al., 2015). This suggests a user-centered approach in the design of gamified systems, characterized by a focus on the needs and desires of learners. A new line of research is taking steps toward developing a theory of educational gamification by combining motivational and learning theories aimed at linking gamification to practical education (Landers, 2015; Landers, Bauer, Callan, & Armstrong, 2015) or by developing a framework for integrating gamification with pedagogy (Tulloch, 2014) or psychology of games (Lieberoth, 2015).

5.3 Findings

It is evident from the data analysis that online computer based teaching-learning strategies are better than normal constructivist approach of teaching. It is more effective and children enjoy by learning this method.
The results indicated significant improvement of the mathematics achievement of the participants who played the games as compared to the ones who did not play the game. A number of reasons for positive learning effects of the games were reported by the participated teachers and students. According to the teachers, the games were effective teaching and learning tools because
(a) they had an experiential nature,
(b) they were an alternative way of teaching and learning,
(c) they gave the students reasons to learn mathematics to solve the game problems and progress in the games,
(d) the games transformed students' mathematics phobia and showed them the relationship between mathematics and real life, and
(e) the game provided by concepts stayed longer with them.

5.4 Educational Implications

Game-based learning, is one of the most popular teaching methods at the moment. The results shows that students who were exposed to game-based learning within the problem-solving process, experienced positive psychological and emotional impact. It provided evidence that the use of educational games can support and enhance mathematical learning outcomes.

Game based teaching learning strategies are based on research oriented constructivist learning theories and experimental activities. It includes skills and activities that increase curiosity for research, satisfy students' expectations and make the student focus on active research for information and understanding.

The following are the main benefits of game-based learning and education:

1. Boosts motivation and self-learning Perhaps the biggest problem that teachers face all over the world is keeping students interested and motivated in their studies. Without motivation, thousands of students, especially from rural or economically lower backgrounds dropout from school every year. But when education becomes game-based, it motivates the students to complete their tasks. This is the focal area that researchers in this field are working on.
Boredom can kill a learner's interest; they need motivation to carry on.Gamification takes away the stress that is so typical of a classroom. Positive learning memories help retain concepts better.

The reward system in games can be used very well from the education perspective. In game-based learning, you get to progress instantly as you learn and understand certain concepts and begin to apply them. There is a constant reward system as you work. This process based on incentives keeps the learners motivated. Contrary to the deferred gratification obtained through end-term exams, games ensure instant gratification.

2. Gives you the choice of what to learn – A very important aspect of game-based education is that students can choose what they learn. If the children are MADE to play a certain game, it will have no learning benefits. Research validates this point because when students can choose what they learn, they take up an active rather than a passive role in their own education. They ask more questions, solve problems faster, learn more effectively; in short, they push themselves harder because they choose what they learn.

3. Develops non-cognitive skills – In traditional classroom settings, especially in India, not much attention is paid to building non-cognitive skills like patience, motivation, self-control and perseverance. However, for children to succeed in later life, these non-cognitive skills are just as important as intelligence.
In multiplayer games catering to students from various schools, when students are allowed to select their school from those listed on the platform and participate in the activities as a representative of that school, it helps in building their communication and social skills. Such multiplayer games are better suited to fulfill all these needs than a classroom.

4. Brings out collective potential- Human beings are said to function better in a network; however, traditional learning processes rarely help us understand the benefits of collective learning and intelligence.Besides harnessing the wisdom of many, online games reduce the risk of communal grouping. This is a platform which could bring out more potential in a supposedly average individual than what others might even be aware of.
Online games foster development, interaction, collaboration and engagement of students, thereby promoting collective intelligence and developing social skills.

5. Allows students to judge their own potential in a wider peer group - in game-based learning which is implemented amongst a vast audience, the students can understand where they stand among their peers from all over the world. Learners can challenge other learners on various subjects and topics, thus understanding their potential level as compared to other people from their own school, country or around the world.
Without establishing the real-time development of learners, no gaming can ever be beneficial. With this process, the student would not just gain knowledge, which is abstract in itself, but also understand where he stands among his peers, which is more important in the practical world.

6. Highly benefits students with special learning needs- Special learning needs of struggling students can learn faster and more easily through game-based learning as it is adaptive to new learning techniques and technologies.

Each learner has their own learning needs, and a one-size-fits-all kind of a teaching methodology cannot address the needs of every student. This is all the more true for students with dyslexia or ADHD (Attention Deficit Hyperactivity Disorder) whose cognition is perceived as different rather than weak.

7. Works as a replacement for skill development and relearning programmes- Today, we have advanced technologies available such as Virtual Reality and Augmented Reality (AR) that can help train a person without the need for skill development programmes.

Beas Ralhan also speaks about the great potential of game-based learning in the relearning industry. In certain scenarios, where formal methods of training are not effective, game-based learning combined with other methodologies can show benefits.

5.5 Suggestion for further studies

Looking into the constraints under which the study was concluded, the findings do not give any generalisations, therefore it is felt that replication of the study on the large scale should be done to arrive at a meaningful generalisation. However, studies may be undertaken on the following:

1) Study can be done to examine student's motivation regarding online educational games.
2) The sample for the present study was restricted to the urban population only and experiment can be done on rural population also.
3) Similar study can also be conducted with the students of other classes and with graduation students also.
4) Online games can be used to teach other subjects also.
5) Study can be done to examine the role of teacher in game based teaching methods in the classroom.
6) Similar study can be undertaken by taking more number of units in order to arrive at a general conclusion.
7) The same study can further be extended to compare the data collected from Government and Private schools.
8) Study can be done to find out the effect of online computer games on other psychological variables like anxiety, stress, etc.

5.6 Effect of gaming on academic performance

The researchers noted that children who play video games almost daily have increased their chances of 1.75 high-performance and 1.88 high-potential.

The study also found that children who play video games appear to have fewer relationship problems with their peers.

After realizing this, Pusso concluded that many video games use (and consequently develop) the skills of analytical and problem-solving skills, some of which include the same psychological techniques you use in mathematics and science. He encouraged teachers to "incorporate favourite video games into teaching - as long as they are not violent."

Video games - at least in the right genre - do not rot your brain. And it is not the best teaching tool in our rapidly changing technological world. So at a time when student motivation is very low.

Educational video games not only have a positive impact on students' academic performance but also bring fun to the classroom. And if we show students that reading can be fun, we can revive their motivation to read – because, at the end of the day, reading is more than just getting another "A."