

Game Based Learning as an Aid for Extenuating Higher Education Sector Issues – The Case of Saudi Arabia

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Abstract — The traditional teaching-learning process which focuses on “teacher-directed pedagogical practices” has its own inherent drawbacks. Modern classroom technologies have presented educators the ease of using a variety of resources and tools for course delivery. Game-based learning (GBL) is an effective resource that can help teachers in engaging students having a wide variety of learning styles. It has the capability of enhancing creativity, problem solving, collaboration, achievement orientation, engagement, and a host of other related skills. Higher-education scenarios in Saudi Arabia (KSA), like many other countries, is replete with issues related to student participation and engagement. KSA, having advanced substantially with respect to technology adoption in education, has the required background to adapt GBL. A carefully implemented GBL programme will aid in ensuring student participation and engagement of indigenous students, which is the need of the hour. The present study analyses the possibility of utilizing GBL in dealing with the issues faced by the higher education sector in KSA.

Keywords - *Serious games, Gamification, Game Based Learning, Pedagogy*

I. INTRODUCTION

Till a few decades back, teaching and learning in the higher education sector was done in a traditional manner. Teaching during this period was mostly based on a sort of “teacher-directed pedagogical practices” [1], wherein students were directed to study a body of theoretical and discipline-specific knowledge. That the traditional approach was totally inadequate to deal with the challenges faces by the new generation is an opinion shared by many [2]. This holds good of all disciplines in general, and management education in particular. Since this pedagogy was seldom subjected to innovation, fervent calls were made by educators for appropriate pedagogies that are capable of maximising deep student learning approaches [3]. With the turn of the century, drastic changes started to occur in the field of higher education, especially in the modes of delivery. Ever since the focus of educators and social scientists has been on teaching and learning effectiveness. This led to the thought process that teaching and learning has to move away from the erstwhile “teacher-centred strategies” to student/learner-centred approaches.

Student/learner-centred approaches were advocated since the students possessed different learning abilities and styles. The fact that no two students have the same learning style necessitates educators to have diverse instructional styles. This is essential for creating a learning atmosphere for all the students in a class. Further, students of the present generation, who have been born into “technology-centric learning environment” is said to have undergone a neurological development that is entirely different from

previous generations. These students require a different model of teaching-learning process. Modern technology in classrooms has presented educators with the ease of using a variety of resources and tools for course delivery, especially in management education. Game-based learning (GBL) is one such effective resource that helps teachers in engaging students having different learning styles. GBL will also help to “meet students where they are in their digital use”, and engage them in a potentially effective way of learning.

GBL is the application of certain gaming principles to real-life settings so as to engage the users [4]. GBL as well as gamification are now implemented in various settings like workplace training, education, and social media; to name a few. GBL according to [5] is:

“a form of experiential engagement in which people learn by trial and error, by role-playing and by treating a certain topic not as ‘content’ but as a set of rules, or a system of choices and consequences.”

Reference [6] clubbed GBL with e-learning and defined it as:

“an example of much more ‘engaged’ eLearning, and which borrows from concepts and experiences seen in video gaming cultures, as well as those underpinning the majority of 21st Century social media interaction”.

GBL could mean the translation of an element or part of a subject/topic into the mechanics of an interesting game. The game could be such that it operates within a self-contained system based on a set of choices and consequences. Games could be made to present various subjects ranging from law of supply and demand of

Economics, to management principles or any law of Physics.

Before discussing more about GBL it would be imperative to discuss about games and gamification. Games can be considered as innate activity of any organism – be it humans or animals. Even as a kid humans enjoy games. Games can be considered as a natural and spontaneous "free activity" that is "not serious", counterpart to leisure, and is considered not to form part of normal life [7]. Playing a game is dependent on a host of elements or factors that may exist in the game – like its rules, adventure, the level of competition, fun, etc. Gamification is "the idea of adding game elements to a non-game situation" [8]. Gamification, according to reference [9] is "the careful and considered application of game thinking to solving problems and encouraging learning using all the elements of games that are appropriate". According to reference [10] it is "the use of gaming techniques, game thinking, and game mechanics to enhance non-game contexts." Gamification has the potential to infuse eagerness in children and young people to engage in educational activities that they normally find to be "boring, unrewarding or too difficult" [5]. Reference [11] is of the opinion that "gamification can add an extra level of motivation and incentive to many higher education activities." Reference [8] states that in educational settings, gamification "add an adventure game layer on top of the existing course infrastructure".

The importance of games in education has been stressed by reference [12]. Games have been found to be effective for educational purposes, and are now personalized and blended with learning environments [13]. Teachers can use 'gamification' as a tool or strategy to improve their teaching, learning as well as assessment. This could involve various activities including the use of video games. Reference [14] stresses that games have the potential of simulating certain behaviours and experiences. It uses a host of techniques like rule-sets, role playing and reward mechanisms that help in motivating and engaging learners. Certain Gaming techniques have been introduced in the workplace practices in areas like induction, onboarding process, career development, performance evaluations, etc. [10]. The biggest advantage of games is that it offers learners the scope of engaging fully with even such topics or ideas that they may not be required to face in the real world. Through virtual reality, they can exercise a wide range of choices and controls without incurring any negative consequences. There are large numbers of positive aspects to gaming that have been identified by social scientists. A few indicative positive aspects are presented in Table 1 opposite.

The literature also presents a distinction with respect to "serious games". According to the Federation of American Scientists, "serious games" have a learning and development application that is broader in range [26]. Such games have wide scope among employers for recruitment, improvement of communication within the organization,

and for development of various levels of employees and new hires [27]. It is capable of providing a variety of higher-order thinking skills that include "strategic thinking, interpretive analysis, problem solving, plan formulation and execution, and the ability to adapt to rapid change" [26]. It is to be appreciated that all these skills are expected by employers in their workforce entrants. Many global companies are now using games to mould their employees. Some of them include IBM, Nortel, McKinsey & Co., SAS Institute, Digital Equipment, etc. [26, 27, 28]; Maurer, 2012; Steinberg, 2012). This presents the pressing need for including it in management education.

TABLE 1
POSITIVE ASPECTS OF GAMING

No.	Author(s)	Details
1	References [15] and [16]	Improves a host of skills among students that include visual, spatial, technical, linguistic, dynamic, cognitive, social, and collaborative. It also enhances their capacity to discover and learn new concepts.
2	Reference [17]	Increases skills like creativity, problem solving, collaboration, and engagement. Other advantages include enhanced and lifelong learning experience.
3	References [18 to 21]	Games help in acquiring intuitive knowledge, achievement orientation, discovery, problem solving, incremental learning, creation of affinity groups, etc.
4	Reference [22]	Games help in changing the learners' cognitive skills. This helps them to simultaneously process multiple information.
5	Reference [23]	Games help learners in improving the quality of deductive reasoning.
6	Reference [24]	There will be all-round improvement of strategic thinking like paying attention, self-evaluation, self-monitoring, self encouragement, structured review, intelligent guessing, etc.
7	Reference [25]	Students get the opportunity to learn in dealing with success and failure. In addition they acquire critical thinking and problem-solving skills.

Gamification can be considered as a prelude of GBL. The use of games to enhance learning experience and student engagement is known as GBL. GBL offers a marked change from traditional passive modes of information dissemination and seeks to engage students. With the massive penetration of digital technology, and the resultant "game-based play", there is a definite need to capitalize on the digital and game-based tools to enhance higher education outcomes. However, it is worth noting that there are differences between Gamification and GBL [8],

which have been identified by many experts. A few such differences are presented in Table 2.

TABLE 2
DIFFERENCES BETWEEN GAMING AND GBL

No	Gamification	GBL
1	The entire learning process is converted to a game	Games are used as a tool and part of the learning process
2	Games are added to the existing/ available contents in order to engage and motivate learners	Involves teaching a specific skill for the achievement of a specific learning outcome
3	Includes a set of tasks with rewards added to it. It may not involve any predefined learning objective	Involves developing contents like simulations that are created to match with the situation/ scene
4	Uses aspects like rewards, points, levels, achievement badges, leaderboard, etc.	Draws the learners to a virtual environment that learners are familiar with
5	Relatively inexpensive and easier to introduce	Expensive as well as difficult to introduce
6	Provides students with choice in learning path	Promotes critical thinking and problem solving

Source: Reference [8]

GBL borrows various concepts and experiences from video games and recent massive social media interactions. Though GBL can be considered to be decades old, its known history dates back to the 1970s, when games like “*The Oregon Trail*” were used in educational field. Recent education-oriented games like “*Atlantis Remixed*” and many such games that were created in partnership with some leading educational game design companies are providing easy and interesting learning opportunities across various curriculums. Of late, GBL has entered the digital space. Some digital GBL that are extensively used in classrooms include commercial games like *Mineraft*, *Portal 2*, *SimCity*, *Civilization*, *World of Warcraft*, etc. When linked to the curriculum, commercial online games become powerful learning tool, as they are capable of enhancing student engagement and interest.

Certain advantages of GBL include making the students highly engaging, easy transfer of knowledge to the real world environment, possibility of immediate feedback with respect to mistakes and last but not the least, a learning pace that is tailored to each individual. It presents teachers means to create and present a representation of the material to be taught, which is more “edutaining” than the normal classroom teaching. GBL, according to reference [29] has received focus since:

“students in the current generation have undergone a different neurological development than previous generations, and that this was largely the result of being born into a technology centric learning environment.”

Reference [25] is of the opinion that if games care capable of enticing the students through its competitive nature, it is certain to provide them with valuable learning experiences. With the advancement of technologies many

new applications are being developed that make gamification and GBL competitive, easier and user friendly. Now there are a large variety of digital games that provide educators and researchers wide scope to explore its utility. Most of these games benefit learners of all ages, both in and out of the classroom. GBL also allows creation of an altogether different world for the learners in which they can plan, experience and analyze things with ease.

II. PROBLEM STATEMENT

Realizing the requirement of a strong higher education sector, Saudi Arabia has, in the last two decades, channeled substantial resources towards this direction. These two decades have witnessed rapid strides with a number of new institutions of higher learning with state of art technology being set up across the country [30, 31]. This is true for management education too. However, as in any other country, the Saudi higher education sector is also beseeched with certain problems. Some of the pressing problems faced by higher education sector including management education in the country are presented in Table 3.

TABLE 3
PROBLEMS FACED BY HIGHER EDUCATION SECTOR IN SAUDI ARABIA

No.	Problem	Description
1	Lack of student motivation and engagement	Since universal education has caught up only recently in Saudi Arabia, students lack the required motivation for studies. Saudi Arabia has a unique collectivist culture. This culture has prevented acquiring of the required level of independence mentality by the youth. Further, the students are yet fully understand the need and requirement of higher education. This unique social structure and situation has resulted in lower levels of student motivation.
2	Reduced attendance	Reduced student motivation and engagement make them to avoid classes. Reduced attendance in individual courses lead to students being disqualified from writing the respective examinations. This will in turn have a cascading effect and the student would be compelled to drop out of the courses and college.
3	High dropout rates	Recent estimates show that the dropout rates from colleges in Saudi Arabia are as high 30 per cent. This is due to a combination of many factors including the above.

Source: Reference 30

In addition to the above, there is also the problem of delayed assignment submissions, which often adversely affect the overall grading, adding to further dropouts. All the above are only a few apparent problems. There may be a number of other problems that are not evident but are closely associated with the above. Based on the identified

problems faced by the higher education sector in Saudi Arabia, the objective of the study is set as under:

- To analyse the possibility of utilizing GBL to deal with the problems faced by the higher education sector in Saudi Arabia.

Though not expressly stated, the focus and bias of the present study is mainly on management education.

III. REVIEW OF RELATED LITERATURE

A. GBL

GBL techniques have the advantage of encouraging competition among the students, and the consequent self improvement [5, 25]. Over the past couple of decades, GBL has attracted considerable attention among academia and industry leaders as a result of the understanding that it is a powerful tool to enhance learning – particularly deep learning. The fact is that knowingly or unknowingly many of us are exposed to “game based engagement techniques” in one form or another. Considerable body of literature is now available about GBL, and its potential benefits for education and learning [25, 32].

GBL has the capacity to create a student-centered environment, which facilitates the inculcation of a host of increased skills like creativity, problem solving, collaboration, and engagement. All these skill are of absolute necessity for a management graduate. GBL also provides enhanced learning experience with interactive content and enables lifelong learning [17]. It helps instructors in incorporating active learning in their sessions, promote students’ interest and engagement, and provide immediate feedback on their performance. Reference [18] states that GBL provides a host of opportunities to experience the world through new various roles and identities. It also has the immense potential of encouraging reflective practice through making players engage in aspects like probing, hypothesizing, and involving in rethinking of the strategies. Learners also get compelling learning experiences as well as opportunity for experimenting, taking risks, and learning from failure without any fear of real-life consequences. Since the gaming experiences are unique in nature, and are dependent upon how gamers act and take decisions, they are indirectly encouraged to become content developers rather than mere consumers of the content. Reference [33] states that GBL is capable of presenting learners with a variety of higher-order thinking skills like critical thinking, problem solving, etc. Further, games require players to think differently, practice known and new skills, and apply higher order thinking [19, 21, 34, 35, 36]. GBL usually invokes significantly higher levels of interaction among students [37].

GBL can be used to represent a wide variety of situations. It could even include situations wherein “big data” needs to be analyzed. Such big data could include operational as well as customer and sales data. Through

such situations GBL presents learners with access to real-world and real-time experience. Such experience helps in experimenting and making real life decisions in virtual environments; without any risks and consequences of the “real world”. This will provide aspiring managers with real life experience, even before they are involved in the actual decision making process.

B. Basic Tenents of GBL

GBL involves multiple dimensions of learning theories and models that are used in the design of games. Designers of games apply such theories and models to develop quality games that are lasting in their impact [38]. Some of them include behaviourism, cognitivism, constructionism, social learning, etc. Viewing digital games in this manner will help in understanding “why and how” games may be implemented in a certain learning environment [32]. Details pertaining to games based on various learning theories are presented in Table 4.

TABLE 4
LEARNING THEORIES AND GBL

No	Theory	Details
1	Behaviourism	<ul style="list-style-type: none"> - Games based on behaviourism present the player with a task/skill that need to be repeated till it is conquered or mastered, as a result of which one gains rewards; thereby gaining extrinsic motivation. - Games under this category can be considered as “drill-and-skill edutainment”. This is criticised on the point that games under this category are considered for training purposes, rather than providing deep learning; thus providing less opportunity for transfer of learning.
2	Cognitivism	<ul style="list-style-type: none"> - Games based on this category provide intrinsic motivation as they involve discovery and inquiry-orientation. - Such games are context based and provides for active construction of knowledge, with problem-solving being the key meta-skills employed [38]. - This involves a learner centred view were individuals actively construct their understanding, due to integration of learning experience and play.
3	Constructionism	<p>This perspective is also similar to cognitivism. Games in this category place emphasis on the external tools that are employed to build knowledge. Certain popular gaming platforms are associated with this.</p>
4	Socio-cultural	<p>Socio-cultural perspective views learning not as a ‘tool that mediates activity’. Here acquisition or construction of knowledge is not of prime importance and games will be based on this. Games will have rich social context and create a viable learning experience.</p>

Another theory that is of relevance for GBL is the ARCS Motivation Model by reference [39]. The model proposes

four motivational elements, and certain strategies that facilitate educators/instructors to stimulate and maintain each of the elements. The elements proposed are Attention, Relevance, Confidence, and Satisfaction. This theory has been examined for its utility by various social scientists [40, 41].

C. Principles of GBL

Reference [5] presented a set of five principles of GBL. They are presented in Table 5.

TABLE 5
PRINCIPLES OF GBL

No	Principle	Details
1	Intrinsic motivation	Being an activity that is done voluntary by the learner, without any compulsion from any quarters, gaming becomes intrinsically motivating. That gaming occurs in the context of invitation and persuasion makes the learner a part of it.
2	Learning through intense enjoyment & fun	Games normally engage learners with a certain “flow” ¹ . This provides them with intense enjoyment and fun while learning, which is normally not available in any other forms of learning.
3	Authenticity	In the traditional form of learning a type of “artificial” or “de-contextualised” only occurs. With GBL, there is authenticity wherein real/actual nature of learning occurs, since priority is for contextual skills than abstract notions and facts.
4	Self-reliance and autonomy	GBL provides a scope for independent inquiry and exploration. Games will also induce a sense of interest, passion and involvement, which would build a desire to have more knowledge about new topics.
5	Experiential learning	GBL is capable of providing a cost effective alternative for learning just as in real life settings. Thus it makes possible experiential learning in an inexpensive manner.

Source: Reference [5].

Reference [42] conducted a review of GBL and provided a detailed overview of various aspects including the components, benefits and challenges faced. They identified two themes that would be ideal for developing GBL. The themes are:

- The need of harnessing the motivational power of games so that learning is fun; and

¹ Flow refers to an “intense, sustained and focused engagement in an activity that leads to rewarding feelings of outstanding productivity” [45]. This is a state of consciousness by which an individual is capable of controlling his/her actions, while being totally and completely absorbed in the task that is accomplished.

- A firm conviction that “learning through doing” is a powerful learning tool.

Reference [43] sum up the benefits of GBL thus:

“game environments enable players to construct understanding actively, and at individual paces, and that well-designed games enable players to advance on different paths at different rates in response to each player’s interests and abilities, while also fostering collaboration and just-in-time learning.”

Certain other benefits that could be derived from GBL include motivation to learn, development of skills, team working, etc. [49]. They are also of the opinion that GBL is mostly successful in areas where there is the necessity of interdisciplinary knowledge that involves critical thinking, group problem solving and involving social interaction. With the advancement of technology, certain games have been so programmed that they are even capable of making both the players and the game itself more sophisticated. It is such that the system gets “smarter” with the constant inclusion of fresh, real-time data; and could continue to change the dynamics of the game [46].

GBL, according to reference [47], need to be the integration of two main avenues, viz., designing of the game and playing. The designing should be such that it has evident educational goals. The contents of the game should be based on such goals. Next, the instructors need to be convinced about the benefits of GBL in their teaching process. The games need also be meaningful, interactive, attractive to the students with an element of fun, have a clear learning objective/goal, and should provide the required feedback.

D. Empirical Studies

A number of studies examined the impact of gaming and various student aspects, most of which have been centred on student motivation and engagement [41, 48 to54].

A study by reference [55] identified GBL as an effective tool that could help students to become independent learners. Reference [53] found that majority of the teachers opined that gaming could enhance motivation and engagement, and support aspects like cognitive development, ICT development, and higher-order thinking skills of students. Reference [54] observed that student motivation is positively impacted by GBL because it provides students with immediate praise, encouragement and reinforcement. Further, GBL also enables the students to develop the required curiosity, motivation and confidence to continue with the task. A study by reference [56] found that students become active with GBL, and found it enjoyable. GBL is not boring because students find a goal to concentrate on, enabling them to retain elements in memory and understand difficult concepts. The findings of this study were corroborated by reference [50]. In a qualitative study, they found that GBL to be entertaining,

engaging, enjoyable, make students to pay more attention and learn better. Games that included adventure, exploration and challenge were liked by the students. Reference [9] found that GBL is capable of producing significant increase in knowledge-level, over the conventional case-based teaching method. Reference [51] could also see a relationship between GBL and student engagement. Further they also found a link between engagement and the level of challenge and skill required for completing a game.

In a meta-analytic study reference [57] found that students had significantly better attitudes towards learning if interactive games or simulations were used, as compared to traditional methods for teaching. They also found that subjects obtained higher cognitive gains in such interactive scenario. Another significant finding was the correlation between attitudes to learning and learning outcomes. Reference [58] found that games have the capability to develop visual and spatial skills of students. It also helps them in learning and discovering new concepts. Through GBL it is possible for learners to interact with large number of co-learner and there is the possibility for them to directly assimilate information and knowledge [47]. A study by reference [42] succeeded in establishing that GBL supports aspects like student motivation, cognitive success, and performance outcomes.

The Library of the University of Huddersfield is an institution that has put GBL to extensive use to motivate and incentivize usage of library among students. They use an application called “*Lemontree*” that links the students’ library accounts to award points so that certain activities done by them in the library like checking out any title or article are incentivised. Through the credit points gained, students compete with each other. They can keep track of their credits through a leaderboard that is displayed on the homepage. Thus the application encourages students to use the library facilities in a fun filled and social way. This has made the library users to provide and overwhelmingly positive feedback about the application [59]. Reference [60] used a meta-analytic study to prove that meaningful and engaging games, where learners get the opportunities to “explore, interact and engage with a complex game world”, have more effectiveness as compared to simpler games that are merely based on drill and practice. The results were in line with the University of Huddersfield study.

A few experiments have been done to check the applicability of ARCS Motivation Model [40, 41] for GBL. The experiment conducted by reference [41] examined the utility of the ARCS Model through a study called “operating a small factory”, with the help of Computer-aided Manufacturing. He used all the strategies and elements of the model to enhance the learners’ cognitive load and help the learners to understand the various concepts involved, and to motivate them towards effective learning.

GBL cannot however be considered as a panacea of all problems that plague the education sector. Neither can it

completely solve all the problems associated with student interest, motivation and engagement. There is a flip side of GBL too.

E. The Flip Side of GBL

Many aspects need to be considered before it can be empathetically stated that GBL is a one stop solution to educational problems. This includes, among other aspects, matching the technology and proficiency of students so that technology does not pose barriers to effective learning. Further, though it is an accepted fact that students love gaming; there is a definite need to check if the games are used merely for the sake of games, or does it actually improve learning and facilitate academic achievement. Another aspect that needs to be focused on is the compatibility of the games. There is always the possibility of and risk of companies creating fun games that are not backed by appropriate research, and researchers creating games that may be content heavy. While the former will not be effective, the later may fail to engage the students. The ideal method would be to have a harmonious blending of games, technology, researchers and social media – which is easier, said than done. Technology innovators are now striving hard to have a harmonious blend of both content knowledge and fun. It is thus, a daunting task for educators to find effective games that are capable of engaging students [61].

Reference [53] is of the opinion that educators are mostly interested in the “pragmatic benefits²” of gaming, rather than real innovation in education. Evidences thus show that there is a flip side of GBL. A few studies have examined this aspect, some of which are presented here.

F. The Relationship Between GBL and Academic Achievement

A few studies have examined if GBL influences academic achievement [48, 49, 54]. Though GBL improves motivation and engagement among students, references [48 and 49] found that it did not result in overall improvement in academic achievement measures. They opined that gaming if gaming is to influence learning outcomes, it has to be run for longer lengths of time. Reference [54] is of the opinion that student motivation and engagement associated with GBL could be short lived as it happens merely due to a “novelty effect”. This statement is however, yet to be empirically tested. Thus the games that need to be developed for being used in GBL should be such that it should serve the dual purpose of engaging players on the

² The assistance provided by games in relating classroom teaching to everyday lives, thereby creating a sort of social interaction in the classroom.

one hand, and effectively teaching them on the other hand. It is also argued by reference [5] that the studies about GBL have mostly been focused on individual subject domains – mostly Mathematics. As such the replicability of these studies across subject domains is at doubt. They further state that future studies should explore the replicable factors that may exist across different subject domains.

IV. GBL IN SAUDI CONTEXT

Literature shows that, aided with the high level of earnings linked with the petroleum industry and the associated economic boom, KSA has wholeheartedly involved and participated in the global digital technology developments. This boom has also propelled public and higher education of the country to higher levels [62 to 65]. An examination of the recent history of KSA shows that public policy strongly supports development and use of latest technologies. For instance, the Eighth Development Plan (EDP), for the period 2005 to 2009, focused on the challenges faced by the nation in the current era. In the EDP, the Ministry of Economy and Planning (MoEP) stressed on four important aspects (MoEP, 2005). They were:

1. “Improving and expanding the current digital technology infrastructure,
2. Expanding Arabic online content,
3. Bridging the digital gap among all segments of the nation, and
4. Applying the concept of e-government.”

Towards this, massive expenditure has been made in various sectors, including higher education. This has facilitated rapid all-round expansion in the sector, including the management discipline, with explosive growth in the areas of infrastructure and student population [64].

Evidences show that gaming has also been used in KSA as an educational tool [63, 66, 67]. Many educational institutions have been found to have used different types of games to help students learn with ease. A number of studies are found to have been done in KSA to find its effectiveness [66 to 70]. All of them have found GBL to be an effective tool in Saudi situation. However, most of the studies have been done in schools. Among all the studies, the one by reference [66] is of paramount importance. The study found that three factors significantly influence students of KSA towards gaming. They identified the factors as competition, discovery, and knowledge.

A. Aiding Factors

A number of factors aid in the use of GBL in KSA. The following sections attempt to discuss a few such factors. Prominent among the aiding factor is the vast changes that have occurred in the recent decades in the field of higher education in general, and in Learning Management Systems

(LMS) in particular. With the introduction of “Blackboard³” (Bb), an e-learning platform, there has been a major boost to blended learning as well as e-learning. Bb provides students with the opportunity to “build and construct knowledge” on what was learnt in a face-to-face dimension. However, adoption and usage of LMS in KSA is reportedly being met with many barriers, most which are rooted mainly in cultural and moral settings [71].

The efficacy of Bb has been subject to a few empirical examinations. Reference [72] evaluated the perception and performance of faculty members at a few universities of KSA and the challenges faced by them in using the Bb. The study concluded that a large majority of the sample considered Bb as an easy to use educational online system. The aspect of the capability of GBL in bringing out student participation in KSA and the utility of Bb in this regards was studied by reference [73]. The study found that students prefer GBL for theoretical concepts; as they find it more easy, interactive and interesting. They also benefited from the use of GBL.

Like in other parts of the world, students in KSA too value an interactive and engaging form of delivery that is capable of recognizing their interests. They also cherish a learning system that involves and empowers them to take action. The Bb, if integrated with a few games will go a long way in making the teaching learning process interactive and engaging. It will also help the educators in making the course delivery a pleasurable and memorable experience. However, great care need be taken in identifying the appropriate games that has the required content and the fun element to engage the students. Bb has the flexibility and user friendliness to include any games. If KSA is to race ahead and achieve the objectives envisaged in the ambitious “*Vision 2030*”, there is a definite need for revolutionary changes in the higher education section in general, and management discipline in particular.

V. SUGGESTIONS AND CONCLUSION

As suggested elsewhere, GBL is the easiest way to “meet students where they are in their digital use”. This will help in bypassing the traditional “teacher centred approach” and engage learners in a better and effective manner. With the digital push underway in KSA and due to the massive investment made towards this, there is ample scope for implementing GBL. This will go a long way in transforming the higher education sector of the country, which is the need of the hour. Selection of appropriate

³ Blackboard is a virtual learning environment and course management system (CMS) developed by Blackboard Inc. It is web-based server software with a host of facilities that include course management, customizable open architecture and scalable design that allows integration with student information systems, and authentication protocols.

games that goes in tandem with the cultural underpinnings of the country is another exercise that should be taken up by the educators in right earnest.

A few games that can be of use in the Saudi scenario, particularly in Management education are presented in Table 6. Focus is given on games in Management due to the background of the authors in this regards.

TABLE 6
A FEW GAMES THAT WOULD BE USED FOR GBL IN KSA

No	Game	Uses
1	<i>World of Warcraft</i>	Helps to learn about “fluid workforces”, dealing with self-organized and collaborative work activities; as well as decentralized and non-hierarchical leadership.
2	MMORPG	Helps to build business skills like recruiting, organizing, motivating. Other uses include directions towards accomplishment of shared goal involving risk-taking, critical thinking, and creative problem solving.
3	<i>Quality Tycoon</i>	Helps learners to study about the effect of quality and ethical integrity on business opportunities.
4	<i>Ultimate Team Play</i>	Teaches learners about the various aspects of customer service skills.
5	<i>Teddy's Chocco Shop</i>	Helps to teach learners about the basics of lean manufacturing in a lucid manner.
6	<i>Kahoot!</i>	Helps to engage students/learners with a host of game-like quizzes, discussions and surveys. It has the flexibility of having either impromptu or pre-made games.

Note: Most of the above games can be accessed through any device with a web browser, including iPad, Android device, or Chromebook.

The above games are only indicative in nature and are not comprehensive. There may be large number of other more effective games that are not presented by the authors. It would always be ideal for educators/teachers to verify the utility of any game, so that it can be linked to the curriculum. Such carefully chosen games will serve the dual purpose of enhancing learning experience, and enhancing student engagement and interest. This will help in bringing out marked changes from the traditional passive modes of information dissemination to an active form of learning, and bring in the desired level of change in the field of higher educations. It is as such concluded that GBL is a definite aid for extenuating the problems of higher education sector in KSA.

The authors will be highly obliged, if the present work stimulates and motivates educators/social scientists to take up further empirical research in this challenging area.

REFERENCES

- [1] M. K. Smith, "Curriculum Theory and Practice,"The Encyclopedia of Informal Education, 2000 www.infed/biblio/b-curric.htm. Retrieved on July 19, 2017.
- [2] A. Prevedel, "Values and Beliefs: The World View behind Curriculum," The Annual Review of Adult Learning and Literacy Volume, 3, pp.8-13,2003.
- [3] J. Biggs, and C. Tang, "Teaching for Quality Learning at University,"(4thed), Maidenhead: McGraw Hill/Open University Press/ Society for Research into Higher Education, 2011.
- [4] J. Trybus, "Game-Based Learning: What it is, Why it Works, and Where it's Going," New Media Institute, 2015 Accessed June 23, 2017. <http://www.newmedia.org/game-based-learning--what-it-is-why-it-works-and-here-its-going.html>.
- [5] C. Perrotta, G. Featherstone, H. Aston, and E. Houghton, "Game-based Learning: Latest Evidence and Future Directions," Slough: NFER, 2013
- [6] Hanoverresearch, "Trends in Higher Education Marketing, Recruitment, and Technology," 2014, downloaded from <http://www.hanoverresearch.com/media/Trends-in-Higher-Education-Marketing-Recruitment-and-Technology-2.pdf>
- [7] P. E. Arruda., and P. D. Arruda, "Leisure, digital games and learning: Perspectives for school education," International Journal on E-Learning, 13(4), pp. 467-482, 2014.
- [8] S. Isaacs, "The Difference Between Gamification and Game-Based Learning," Association for Supervision and Curriculum Development, 2015,<http://inservice.ascd.org/the-difference-between-gamification-and-game-based-learning>. Accessed on July, 2 2017.
- [9] K. M. Kapp, "The Gamification of Learning and Instruction: Game-based Methods and Strategies for Training and Education," San Francisco, CA: Pfeiffer, 2012.
- [10] R. Pitts, "Using gamification to motivate Millennials. SHRM Online," 2012, Retrieved from <http://www.shrm.org/HRdisciplines/diversity/articles/pages/using-gamification-to-motivate-millennials.aspx>.
- [11] B. Kim, "Gamification." Keeping Up With.... ACRL, 2013, http://www.ala.org/acrl/publications/keeping_up_with/gamification.
- [12] A. D. Ritzhaupt, N. D. Poling, C. A. Frey, and M. C. Johnson, "A synthesis on digital games in education: What the research literature says from 2000 to 2010,"Journal of Interactive Learning Research, 25(2), pp.263-282, 2014
- [13] G. Thompson, "Smart classroom technologies ... What's hot and what's not in ed tech for 2015," 2015,Available at <https://thejournal.com/articles/015/01/05/wahtshot-and-whats-not-in-ed-tech-for-2015.aspx>
- [14] I. Bogost, "How to Do Things with Video Games," Minneapolis, MN: University of Minnesota Press, 2011.
- [15] M. Adkins, "How video games and digital literacy impacts student achievement and development: an analysis of synergistic integration," *Society for Information Technology & Teacher Education International Conference 2014*, (1), pp. 1-5, 2014
- [16] V. Marín Díaz, and J. Martín-Párraga, "Can videogames be used to develop the infant stage educational curriculum?," *Journal of New Approaches in Educational Research*, 3(1), pp.20-25, 2014.
- [17] C. Bouras, V. Igglesis, V. Kapoulas, I. Misedakis, O. Dziabenko, A. Koubek, and A. Sfiri, "Game based learning using web technologies," *International Journal of Intelligent Games & Simulation*, 3(2), pp.70-87,2004.
- [18] J. P. Gee, "What Video Games Have to Teach Us About Learning and Literacy," New York: Palgrave Macmillan, 2003.
- [19] J. P. Gee, "Situated language and learning: A critique of traditional schooling," New York, NY: Routledge, 2004.
- [20] J. P. Gee, "What would a state of the art instructional video game look like?," *Innovate: Journal of Online Education*, 1(6), 2005.
- [21] J. P. Gee, "What video games have to teach us about learning and literacy," New York, NY: Palgrave Macmillan, 2007.
- [22] O. Hostetter O. "Video Games - The Necessity of Incorporating Video Games as part of Constructivist Learning," James Madison University, Department of Educational Technology, 2002.
- [23] P. M. Greenfield, "Media and the Mind of the Child: From Print to Television, Video Games and Computers," Cambridge: Harvard University Press, 1984.

- [24] J. G. Hogle, "Considering Games as Cognitive Tools: In Search of Effective 'Edutainment'," University of Georgia Department of Instructional Technology, 1996.
- [25] S. B. Icard, "Educational technology best practices," *International Journal of Instructional Technology and Distance Learning*, 11(3), pp.37-41, 2014. http://itdl.org/Journal/Mar_14/Mar14.pdf#page=41 Accessed on 17.7.2017
- [26] S. Steinberg, "Video games are tomorrow's answer to executive training," *Fast Company*, 2012. <http://www.fastcompany.com/1824740/video-games-are-tomorrows-answer-executive-training>. Retrieved on 1.7.2017.
- [27] A. Derryberry, "Serious games: Online games for learning. Adobe, 2007. Retrieved from http://www.adobe.com/products/director/pdfs/serious_games_wp_11-7.pdf
- [28] A. Maurer, "Serious games invade the military, medical and corporate worlds," *Tech Journal*, 2012. <http://www.techjournal.org/2012/10/serious-games-invade-the-military-medical-and-corporate-worlds/>.
- [29] L. Tham, and R. Tham, "Is Game Based Learning an Effective Instructional Strategy to Engage Students in Higher Education in Singapore?," A Pilot Study. *Journal of the Research Center for Educational Technology*, 8 (1), Spring, 2012. Downloaded from <http://www.rceitj.org/index.php/rceitj/article/view/160/261>
- [30] M. M. Sulphey, and N. S. Al Kahtani, "Economic security and sustainability through social entrepreneurship: the current Saudi scenario," *Journal of Security and Sustainability Issues* 6(3), pp. 479–490, 2017a. [http://dx.doi.org/10.9770/jssi.2017.6.3\(12\)](http://dx.doi.org/10.9770/jssi.2017.6.3(12))
- [31] M. M. Sulphey, and N. S. Al Kahtani, "Academic excellence of business graduates through nudging: Prospects in Saudi Arabia," *International Journal of Innovation and Learning* (in press), 2017b.
- [32] J. Groff, C. Howells, and S. Cranmer, "The impact of console games in the classroom," 2010. www.futurelab.org.uk
- [33] T. Kaya, "A 'Stealth Assessment' Turns to Video Games to Measure Thinking Skills." *The Chronicle of Higher Education*, November 7, 2010. <http://chronicle.com/article/A-Stealth-Assessment-Turns/125276/>.
- [34] T. Fullerton, "Game design workshop: A playcentric approach to creating innovative games," Third edition. Boca Raton, FL: CRC Press/AK Peters, 2014.
- [35] H. Jenkins, "The cultural logic of media convergence," *International Journal of Cultural Studies*, 7(1), pp.33–43, 2004.
- [36] K. Salen, "Game-like learning: Leveraging the qualities of game design and play," In W.G. Tierney, Z. B. Corwin, T. Fullerton, & G. Ragusa (Eds.) *Postsecondary play: The role of games and social media in higher education*. Baltimore, MD: John Hopkins Press, 2014.
- [37] D. Gibson, "The Potential of Games and Simulations in Higher Education," *Next Generation Learning*, January 17, 2013.
- [38] S. Egenfeldt-Nielsen, "Overview of research on the educational use of video games," *Digital kompetanse*, 1(3), pp. 184-213, 2006.
- [39] J. M.Keller, "Development and Use of the ARCS Model of Instructional Design," *Journal of Instructional Development*, 10(3), pp.2–10, 1987. Retrieved from <http://www.jstor.org.proxy.lib.wayne.edu/stable/30221294>
- [40] T. Y. Liu, & Y. L. Chu, "Using ubiquitous games in an English listening and speaking course: Impact on learning outcomes and motivation," *Computers & Education*, 55(2), pp. 630-643, 2010.
- [41] J. C. Woo, "Digital Game-Based Learning Supports Student Motivation, Cognitive Success, and Performance Outcomes," *Educational Technology & Society*, 17 (3), pp.291–307, 2014.
- [42] J. Kirriemuir, and A. E. McFarlane, "Literature review in games and learning," Bristol: Futurelab, 2004. Retrieved on June 24, 2017, from www.futurelab.org.uk/resources/documents/lit_reviews/Games_Review.pdf
- [43] E. Klopfer, S. Osterweil, and S. Katie, "Moving learning games forward: Obstacles, Opportunities & Openness," An Education Arcade white paper, 2009. Retrieved on June 23, 2017 from http://education.mit.edu/papers/MovingLearningGamesForward_EdArcade.pdf
- [44] M. Pivec, and O. Dziabenko, "Game-Based Learning in Universities and Lifelong Learning," *UniGame: Social Skills and Knowledge Training*, *Game Concept. J. UCS*, 10(1), pp. 4-16, 2004.
- [45] M. Csikszentmihályi, "Creativity: Flow and the Psychology of Discovery and Invention," New York, NY: Harper Perennial, 1996
- [46] K. Kelly, "Got Game? The Use of Gaming in Learning and Development." UNC Executive Development, 2013. www.execdev.unc.edu
- [47] C. T. Miller, "Games: Purpose and potential in education," New York: Springer 2008
- [48] L. A. Annetta, J. Minogue, S. Y. Holmes, and M. T. Cheng, "Investigating the impact of video games on high school students' engagement and learning about genetics," *Computers and Education*, 53(1), pp.74–85, 2009.
- [49] K. Fengfeng, "A case study of computer gaming for math: engaged learning from gameplay?," *Computers and Education*, 51(4), pp.1609–1620, 2008.
- [50] M. Kebritchi, A. Hirumi, and H. Bai, "The effects of modern mathematics computer games on mathematics achievement and class motivation," *Computers and Education*, 55(2), pp.427–443, 2010.
- [51] C. C. Liu, Y. B.Cheng, and C. W. Huang, "The effect of simulation games on the learning of computational problem solving," *Computers and Education*, 57(3), pp. 1907–1918, 2011.
- [52] NVos, H. van der Meijden, and E. Denessen, "Effects of constructing versus playing an educational game on student motivation and deep learning strategy use," *Computers and Education*, 56(1), pp.127–137, 2011.
- [53] B. Williamson, "Computer Games, Schools and Young People: a Report for Educators on Using Games for Learning," Bristol: Futurelab, 2009. Available at http://archive.futurelab.org.uk/resources/documents/project_reports/becta/Games_and_Learning_educators_report.pdf Downloaded on 28 June, 2017.
- [54] C. Y. Ya-Ting, "Building virtual cities, inspiring intelligent citizens: digital games for developing students' problem solving and learning motivation" *Computers and Education*, 59, 2, pp. 365–377. 2012
- [55] D. Lim, "Academic gaming: Flash learning games," University of Minnesota. U.S.A., 2004. <http://flashgames.umn.edu>
- [56] M. Papastergiou, "Digital game-based learning in high-school computer science education: Impact on educational effectiveness and student motivation" *Computers and Education*, 52(1), 1–12, 2009.
- [57] J. J.Vogel, D. S.Vogel, J. Cannon-Bowers, C. A.Bowers, K. Muse, and M.Wright, "Computer gaming and interactive simulations for learning: a meta-analysis," *Journal of Educational Computing Research*, 34(3), pp. 229–243, 2006.
- [58] M. V.Diaz, & J. Martín-Párraga, "Can videogames be used to develop the infant stage educational curriculum?," *Journal of New Approaches in Educational Research*, 3(1), pp.20-25 2014.
- [59] A. Walsh "Final Report on Lemontree. University of Huddersfield," May, 2012. <http://www.hud.ac.uk/media/universityofhuddersfield/content/tlinstitute/documents/projects/projects11/Lemontreefinalreportforwebsite.docx>
- [60] C. M. Chiu, M.H. Hsu, H. Lai, & C.M. Chang, "Re-examining the influence of trust on online repeat purchase intention: the moderating role of habit and its antecedents," *Decision Support Systems*, 54(4), pp. 835-845 2012.
- [61] L. Chien-Hung, L.Yu-Chang, J. Bin-Shyan, & H. Yen-Teh, "Adding social elements to game-based learning," *International Journal of Emerging Technologies in Learning*, 9(3), pp.12-15 2014. doi:10.3991/ijet.v9i3.3294
- [62] A. Al-Issa, "Education reform in Saudi Arabia between the absence of political vision and apprehension of religious culture and the inability of educational administration," Lebanon, Beirut: Dar Al-Saqi, 2009.
- [63] A. Al-Zahrani, "Faculty satisfaction with online teaching in Saudi Arabia's higher education institutions," *International Journal of Instructional Technology and Distance Learning*, 12(4), pp.17-28, 2015.
- [64] A. Onsman, "It is better to light a candle than to ban the darkness: Government led academic development in Saudi Arabian

- universities," 2011. Higher Education, 1–14. doi: 10.1007/s10734-010-9402-y
- [65] Ramady, Mohamed A., "The Saudi Arabian Economy: Policies, achievements, and challenges" Second Edition, Springer, 2010
- [66] M. Alqurashi, Y. Almoslamani, A. Alqahtani, "Middle school students' digital game experiences in Makkah in Saudi Arabia," Proceedings of the Second International Conference on Education, Social Sciences and Humanities, Istanbul, Turkey. June, 2015.
- [67] M. Al-Zoyoodi, "Electronic games and their educational implications on the pupils of Madinah primary schools as perceived by their teachers and parents," 2015. Retrieved from <http://repository.taibahu.edu.sa/bitstream/handle/123456789/13833/2.pdf?sequence=1>
- [68] A. A. Al-Hadlaq, "The advantages and disadvantages of playing electronic games and motives of the playing from the viewpoints of public education students in Riyadh City," Unpublished master thesis submitted to King Saud University, Riyadh, 2011.
- [69] O. M. Alharbi, "The effectiveness of the instructional electronic games on academic achievement in math course" (Unpublished doctoral dissertation). Makkah, Saudi Arabia: Umm Al-Qura University, 2010.
- [70] A. S. Aljuhani, "The effectiveness of the instructional electronic games on academic achievement in English course for the students of intermediate level" (Unpublished master thesis). Jeddah, Saudi Arabia: King Abdulaziz University, 2011.
- [71] M. Aljaloud, "Barriers to implementing Learning Management Systems in Saudi Arabian higher education," Master thesis, Flinders University, 2012.
- [72] H. A. Z. H. El-Zawaidy, "Using Blackboard in Online Learning At Saudi Universities: Faculty Member's Perceptions And Existing Obstacles," International Interdisciplinary Journal Of Education, 3(7), pp.142-150, 2014.
- [73] S. M. G. Elhag, "Game based Learning and using Course Learning, Collaboration and Management Tools in Black Board," International Journal of Computer Applications, 154(2), pp.21-24, 2016.