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THE IMPACT OF SMART MONEY KIT ON CHILDREN'S FINANCIAL KNOWLEDGE, ATTITUDE AND BEHAVIOR

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ABSTRACT

Financial management is one of the vital requirements throughout everyday life, as one develops, the utilization of financial management recurrence would be extraordinarily expanded. Since, financial thinking could be developed, expanding the propensity for financial management and understanding financial-related awareness at a early age greatly affect encouraging future financial behavior. Hence, in this research the research group incorporated gamification and edutainment in to a tool called Smart Money Kit. The objective behind the inovation of Smart Money Kit is as an alternative financial education tool for parents, teachers and other adults to assist in educating children in personal financial management. The results demonstrated that the Smart Money Kit to be helpful regarding the enhancement of financial knowledge by 59%, positive financial attitudes by 21.9%, and better financial behaviour by 19.3% of the children. Therefore, the majority of the parents, teachers and caretakers agree that Smart Money Kit has guided their children to become financially prudent and 90% of them evidenced a huge difference in their children after being exposed to Smart Money Kit. Hence this kit has been proved to be an effective tool to educate children on financial literacy besides able to develop a positive financial attitudes and better financial behaviour among the children..

Keywords: edutainment, financial education, financial literacy, gamification, money management, Smart Money Kit

INTRODUCTION

Financial literacy is an important fundamental ability for taking part in current society. Youngsters are experiencing childhood in an inexorably unpredictable existence where they will inevitably need to assume responsibility for their own financial future. As adolescents figuring out how to live freely, they should realize how to budget and wise financial choices will be done in their day to day life. They should oversee risks, keep away from unmanageable debt, and accommodate their mature age and health care. Nowadays, the financial products and services are vary widely and, many of today's young people can access them too easily. Simultaneously, these products and services are getting more complex and the choices are increasingly troublesome.

Youngsters who build up the essentials of financial capability are bound to turn out to be financially secure adults (Moffitt et al., 2011). If a rigorous financial education program is implemented carefully, it can develop credit behaviors of children (Urban, Schmeiser, Collins, & Brown, 2015). However, numerous youngsters progress to adulthood without having built up the

essential financial knowledge, skills, and practices that are critical for building up solid financial futures. Additionally, even if specific financial knowledge and skills are less relevant to young children in elementary school, they may still benefit from age-appropriate education that promotes the acquisition of foundational skills that affect financial behaviors and well-being. One study that followed children from birth through age 32 found that those who had greater self-control between ages three and 11 were, in adulthood, more likely to own a home and have investments and retirement funds. Adults who had poor self-control as kids were more expected to report having money management and credit problems.

Curricula for elementary school children should also serve as an age-appropriate introduction to core concepts about money (e.g., the use of bills and coins, the purpose of money) and markets (e.g., how goods and services are exchanged), and how institutions facilitate the interaction between individuals and the exchange of goods and services (Holden, Kalish, Scheinholtz, Dietrich, & Novak, 2009). Familiarity with core concepts influences the ability to attain specific knowledge and skills and, ultimately, to successfully make sound financial decisions. Research on a number of financial education programs for kids in elementary school and even for those in preschool support the idea that kids are skilful for grasping certain elementary, core financial concepts (O'Neil-Haight, 2010; Sherraden, Johnson, Elliott, Porterfield, & Rainford, 2007).

Further more, Parents play a significant role in how kids develop financial norms, attitudes, knowledge, and behaviors, perhaps even more so than other factors such as youth work experience or financial education itself (Campenhout, 2015; Shim, Barber, Card, Xiao, and Serido, 2010). Children frequently identify their parents as both their primary and most preferred source of financial information (Totenhagen et al, 2015), and parents both implicitly and explicitly teach their children about finances, frequently furnishing them with their first encounters and interactions with cash. By participating in adult financial behaviors for example, going with a parent to the bank to deposit a check, children receive early context and familiarity with money and financial organizations that can enhance their financial literacy later on. Early-age experiences such as receiving an allowance or having a savings account as a child, for example, have been tied to lower rates of financial anxiety and greater individual financial responsibility in young adulthood (Kim, & Chatterjee, 2013). Therefore, it is not surprising that there is a significant association between parents' financial behaviors and children's financial literacy. Data from the National Longitudinal Survey of Youth (NLSY) show that children whose parents did not have a higher education, stock holdings, or retirement savings were 16 percent less likely to correctly answer questions about risk diversification (Lusardi, Mitchell, & Curto, 2010). Other work has found a relationship between parents' financial behaviors during a child's adolescence and facility with debt management nearly a decade later in early adulthood (Tang, 2017).

The OECD prescribed to start teaching financial education in schools as early as possible in 2005 because, it is a fair and efficient policy tool. Past research also revealed that parents and teachers play an important role to influence children on financial literacy (Sabri, McDonald, Hira & Masud, 2010). However, not many parents and teachers have the knowledge and skills to educate children in money management. Therefore, in the context of early childhood education, parents, teachers and other adults need to utilize various approaches in teaching and research recommended that playful learning experiences seem to be a particularly effective mechanism for the improvement of these wide, dynamic, and interconnected abilities (Weisberg, Hirsh-Pasek, Golinkoff, Kittredge,
& Klahr, 2016). For instance, while youngsters are playing, they can familiarize new social

aptitudes (e.g. conceding to how to cooperate with materials, sharing toys), and they frequently take on some thought-provoking cognitive tasks for example, making sense of how to make a structure with littler squares when the bigger ones are not accessible. Kids are "hands-on" learners. They procure information through playful interaction with objects and individuals (Whitebread, Coltman, Jameson, & Lander, 2009). Therefore, the Smart Money Kit: Bright Kids Smart Money as an alternative financial education tool for parents, teachers and other adults to assist in educating children in personal financial management is a very good solution for solving the problems related to the money management by teaching children in a playful environment. Furthermore, applying this concept in education is an innovative method in delivering knowledge and information replacing the traditional method of teaching and learning (Rahman, Ibrahim, Abidin, & Fauzi, 2017).

LITERATURE REVIEW

Gamification

As indicated by Kapp gamification is "using game-based mechanics, aesthetics and game thinking to engage people, motivate action, promote learning, and solve problems" (Kapp, 2013, p. 1). But, Robson, Plangger, Kietzmann, McCarthy, & Pitt (2015) have characterized the gamification as the utilization of game-design components and game principles in non-game settings. After overlapping different definitions, the gamification is an integration of game elements and game thinking in activities that are not games. Gamification commonly employs game design elements for learning (Hamari, Koivisto, & Harri, 2014). The choices for gamification are constrained distinctly by teacher innovativeness and trigger progressively proficient and connected with learning behavior (Muntean, 2011). Gamification based education has the potential to develop self-quality such as able to solve the problem more systematic and organized, inculcate value of fortitude, and build creativity among students (McGonigal, 2011). Gamification is not legitimately connected with information and abilities and influences students' behavior, responsibility and inspiration, which can prompt improvement of knowledge and skills (Huang, & Soman, 2013).

Edutainment

Educational entertainment or edutainment is media intended to teach through entertainment (Rapeepisarn, Wong, Fung, & Depickere, 2006). Generally it incorporates substance planned to educate but has incidental entertainment value. It has been utilized by governments, corporations, academia, and other entities in different nations to disperse information in classrooms and/or potentially by means of radio, television, and other media to persuade spectators' attitudes and behaviors (Rapeepisarn et al., 2006). Enthusiasm for consolidating training with entertainment, particularly to make the studying more pleasurable, has be existent for many years, with the revitalization and enlightenment being movements in which this fusion was displayed to children (Trna, 2007).

Several studies have been carried out in relationship with edutainment and its efficiency in its different structures. Especially, the usage impacts of the idea of the edutainment in the setting of classroom have been examined on several times. The idea of flipped classrooms, in relationship with edutainment was examined by Retta and Marquis (2016), in which scholars were allocated audiovisual modules and podcasts instead of ventures before the class. It was observed that these students beaten those in conventional classrooms, observed the real time in class to quick

more interaction, and believed the class to be increasingly entertaining, despite the fact that there was a recognizable time of adaptation.

A research directed by Lynch-Arroyo and Asing-Cashman (2016), *Numb3rs* (an edutainment television show) was incorporated into the teaching of preservice mathematics instructors. The ensuing outcomes demonstrated the possibility for edutainment to encourage increased engagement, growth mindsets, and critical thinking. Likewise, Cox, Cheon, Crooks, & Lee (2017), led a research in which a mini-series that united entertaining and educational components was established and presented to pharmacy instructors. A framework that united the idea of edutainment using games has also been examined in relationship with debilitated students by Dandashi et al., (2015), and it was observed that the framework had a positive effect regarding scores, communication, coordination, and memorization skills; after replaying, higher scores were often taken as well.

Effectiveness

The effect of the educational games have examined by several researchers with respect to learning outcomes and motivation levels. The participants of Papastergiou's (2009) research were indicated that the gamification approach made more effective, active and engaging in learning. Further they pointed out that they appreciated an increasingly stress-free learning condition. Anderson and Barnett's study (2011) on teachers' comprehension of electromagnetic concepts utilizing a game named "Supercharged" contrasted with children who directed an increasingly conventional request of similar concepts observed that the cluster that utilized audiovisual games beat the cluster that did not in terms of studying outcomes. Though, there are also differentiating investigations. For example, Squire (2005) revealed that bring in games to the classroom does not definitely give positive outcomes and can instead produce students with complaining and a lack of motivation.

As indicated by Dichev and Dicheva (2017), games cause inspiration and commitment, the proposition to gamify studying is tempting. In connection to this point, studies have demonstrated that inspiration is one of the highly significant indicators of academic accomplishments (Linehan, Kirman, Lawson, & Chan, 2011) as it is connected to studying associated ideas, for example, effort, engagement, focus of attention, goals, self-efficacy, interest, confidence, and achievement. Hence, gamification's advantage as far as encouraging and fortifying studying is multifold. As featured by Caponetto, Earp and Ott (2014), the advantages of gamification expand studying in a assortment of settings and disciplines, and advance participatory methodologies, collaborations, self-guided study, make evaluations, and efficient completion of assignments increasingly viable and simpler to lead. The incorporation of investigative methodologies into adapting likewise encourages student inventiveness and maintenance. Concerning strengthening learning, Bonde et al.'s (2014) research on the impacts of joining gamification components with reenactments to improve the inspiration and studying viability of biotechnology students indicated that a gamified research laboratory simulation can expand inspiration stages and studying outcomes when contrasted with conventional instructing. Moreover, in advanced education, games for example, "Kahoot" are ideal for different instructional practices for example, tutorials, lectures, assignments, projects, lab activities, discussions, and class exercises, as displayed by Dichev and Dicheva (2017) in their study on gamifying education.

Financial education

Several researchers explicitly study financial literacy in an adolescent setting. Australia's National Consumer and Financial Literacy Framework (NCFLF) states, "Consumer and financial literacy

is important for all young people to empower them to make informed consumer decisions and to manage effectively their personal financial resources" (NCFLF, 2005). Further they stated that "Many young people are unskilled in managing their personal finances, yet this crucial life skill will greatly affect their future economic well-being". According to Kozup and Hogarth (2008), the financial education programs should begin with a participant defined goal for example, turning into a property holder, saving for retirement, or reducing debt. The Borden, Lee, Serido, & Collins (2008) study of a seminar-based financial education program administered to college students stated that "the seminar effectively increased students' financial knowledge, increased responsible attitudes toward credit and decreased avoidant attitudes towards credit from pre-test to post-test. At post-test, students reported intending to engage in significantly more effective financial behaviors and fewer risky financial behaviors" (p. 27). In Malaysia, Sabri & MacDonald (2010) conducted a study among college students and revealed that students with higher financial knowledge were more likely to engage in savings behavior, while those students with more noteworthy impact from socialization agents and late exposure in their childhood purchaser experience were less likely to take part in savings behavior.

A team of researchers from the Norwegian University of Science and Technology (NTNU) was conducted a research to examine the effects of a conventional non-gamified response framework, a game-based response framework ("Kahoot") and paper-form formative assessment for a quiz in lectures (Wang, Zhu, & Satre, 2016). The outcomes were significantly motivated towards the utilization of "Kahoot". The undergraduates were seen as increasingly inspired by "Kahoot" as contrasted to "Clickers" and the "paper-form quiz". The undergraduates' reactions additionally demonstrated a more significant level of fulfillment and commitment. However, if, no significant differences were obtained, a positive effect on learning outcomes was not also evident. In an another study; "K-12" games likewise obseved to enhance inspiration, academic achievement, and classroom dynamics (Rosas et al., 2013). Sharples (2000) affirmed that gamebased learning has a similar impact in advanced education. This was proved in Tüysüz's (2009) research which exhibited that integrating gamification approach can result in enhanced accomplishment in chemistry when contrasted with conventional learning techniques. Improved learning results were also identified in study by Liao, Chen, Cheng, Chent and Chan (2011) when gamification tools and techniques were used.

METHODOLOGY

Researchers have conducted an online survey to those who had experienced using Smart Money Kit. The questionnaire was being generated through Google Form and sent to the users in Malaysia through social media (Facebook and Whatsapp) and email. Altogether a total of 100 Malaysian respondents had been contacted but only 40 respondents were responded and the survey was done within two weeks period. This online survey was administered to identify the feedback from the users on how they rate Smart Money Kit. The online survey consisted of three parts which is (A) User profile which gather information on the relationship of respondents to the Smart Money Kit User, and age; (B) User Evaluation which consist of 11 questions on evaluating the effectiveness of Smart Money Kit; and (C) Last section consist questions on the impact of Smart Money Kit on chuldren' financial knowledge, financial attitude and financial behavior before and after using their kit. First 10 questions on financial knowlede with true and false answers were asked before children use the Smart Money Kit. Next eight questions on financial attitude with five type likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree) and the other eight questions on financial behavior with three type likert scale ranging from 1 (Never) to 3 (Always).

What is Smart Money Kit?

Smart Money Kit is a financial education kit which comes with 10 numerous games and activities arranged according to the children's ages and developmental stages. The interactive activities are suitable for children aged 6 to 12 and can be carried out on their own, with friends or with the family at any time and also suitable for teaching and learning activities at home and at school. The kit comes with a guide book containing objectives, timing, requirements and instructions of each activity for easy guidance with illustrations on conducting the activities. Smart Money Kit comprises six basic units covering financial management education which are (1) getting to know money; (2) the purpose of money; (3) needs vs wants; (4) savings; (5) expenditure and budget; and
(6) the basic concepts of Islamic banking. The kit comprises 16 games or activities designed to meet the needs of children according to age and developmental stage. This educational product is in the form of education holistically, including physical, emotion, social and moral. The activities are arranged according to difficulty- from easy to difficult- so children are able to master each topic according to their ability and skill, with activities such as arranging cards to financial board games. The kit also includes on-going practice in saving money, e.g. "My Goals" and "My Pocket Money Diary" photo frames. With these, children will be able to identify their financial goals more clearly and specifically, and keep a record of their pocket money savings. It provides evaluation of knowledge gained and understanding levels in the form of pre and post assessment after each unit.

Figure 1: Smart Money Kit: Bright Kids Smart Money

RESULTS AND DISCUSSION

Users Profile

The Figure 2 exhibits the relationship of respondents to the children who are using the Smart Money Kit. Higher percentage (42.5%) of them were mothers, followed by fathers (20%), teachers (17.5%), other adults (15%) and least by caretakers (5%).

Effectiveness of Smart Money Kit

According to the responces of parents, teachers and caretakers, majority of them (92.4%) agreed that the Smart Money Kit has enhanced the saving practices of their kids, but the rest of the respondents (7.5%) were neutral (Table 1). Furthermore, 87.5% agreed that they can spend efficiently and wisely. Numerous researches have been done to discover the impacts of student saving behavior. But parents are the significant impact for the kids toward their saving behavior. Other studies about saving behavior that has been done by Sabri and Macdonald (2010) found that people who have earlier consumer behavior (since the childhood) are probably going to have more saving behavior, yet in addition they face more financial issues.

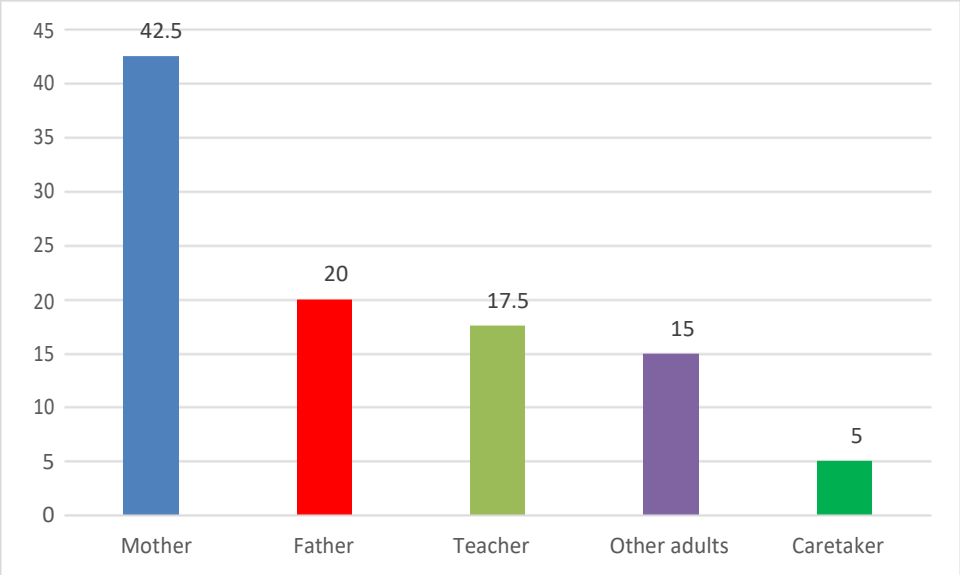

Figure 2: Relationship with Smart Money Kit Users

The results are also revealed that the children can identify their financial goals (85%) with the help of Smart Money Kit and it is also helpful tool for the familiarization of kids on short-term and long-term financial goals, which requires different plans and strategies to achieve them. Therefore, knowing about kids how to set money goals is essencial on the grounds that they will end up being an adult sooner or later and it is brilliant that they figure out how to begin making arrangements for their monetary future at this point.Not only that, 90% of the respondents believed that the kids able to differentiate between needs and wants due to the usage of Smart Money Kit, but 2.5% was disagreed with the statement. Further, through the gamification, the children learn that money is a limited source and need to be spent wisely by recognizing and distinguishing the differences between needs and wants.

About 90% of the parents and caretakers of the kids who bought Smart Money Kit agreed that their children learn about budgeting through the kit and then the kids know to priortise their expenses and spend within their mean. It is an essential part of the money management and important for spending the money that they have wisely.The price comparision of goods and gaining information before purchasing are an another important skill that need to be employed as it make the kids to make some survey, compare and make purchasing decision without tolerating the quality of products with an affordable price. These abilities were also gaind by the children

who used Smart Money Kit and 85% of the respondents were agreed with that. On the other hand only 2.5% of the respondents were not satisfied of the above two aspects strongly.

It is extremely critical to monitor how people are spending their money. The first step is recognizing how people are handling their money, and controling of their finances. The major reason that people track their expenses is to make financial awareness. If people do not know where their money goes or how they spend it, people will not know what habits they have to alter in order to make the money work for them. Indeed, even the small daily costs can blow their budget. Therefore, the concept "being aware of spending money whereabout" is very important in the context of money management and 90% of the parents and caretakers were believed that their kids gain this ability after using the Smart Money Kit.

A sustainable consumers show sustainable consumer behaviors and it is important to enhance social and environmental performance just as address their issues. It describes how customers do or do not integrate sustainability issues into their consumption behavior. Additionally, it investigates what items purchasers do or do not purchase, how they utilize them and what they do with them afterwards. Hence, becoming a sustainable consumer is like become an environmental friendly person and the 82.5% of the parents who bought the Smart Money Kit believed that their children learn to become a sustainable consumer after playing with the kit.

Nowadays most of the people are more self-centric and help others randomly. But, most of the respondents (85%) have agreed that the Smart Money Kit help their kids to become to a selfless individual helping others in needs. The major reason behind that was the understanding that money is not the only need in life and it should be shared with those in need.

Table 1: Effectiveness of Smart Money Kit towards Children

Statement				
In overall, Smart Money Kit helps my children / student/ user in…		D	N	A
a.	enhancing saving practices	-	3 (7.5)	37 (92.4)
b.	spending efficiently and wisely	-	5 (12.5)	35 (87.5)
c.	identifying financial goals	-	6 (15.0)	34 (85.0)
d.	differentiating between needs and wants	1 (2.5)	3 (7.5)	36 (90.0)
e.	preparing spending plans (budget)	-	4 (10.0)	36 (90.0)
f.	comparing price	1 (2.5)	5 (12.5)	34 (85.0)
g.	gaining information before purchasing	1 (2.5)	5 (12.5)	34 (85.0)
h.	discussing with parents before purchasing	1 (2.5)	4 (10.0)	35 (87.5)
i.	being aware of spending money whereabout	-	4 (10.0)	36 (90.0)
j.	becoming a sustainable consumer	-	7 (17.5)	33 (82.5)
k.	becoming a selfless individual helping others in needs	1 (2.5)	5 (12.5)	34 (85.0)

Notes: D=Disagree; N=Neutral; A=Agree

Impact of Smart Money Kit on Users' Financial Knowledge, Financial Attitide and Financial Behavior

Majority of the parents, teachers and caretakers stated that children have a change in terms of financial knowledge, attitude and behavior and the changes were represented in Figure 3. According to the results, higher level of financial knowledge was incresed by 59% and medium level financial knowledge was decreased by 29% after playing with the Smart Money Kit. Furthermore, 20% of the lower level of the financial level was reduced to 0% and their financial knowledge might be enhanced to the medium or higher levels completely. In terms of the financial

attitude, less positive attitude having children's pecentage was decresed by 21.9% and it was transformed into the group of having positive financial attitudes. Furthermore, parents believed that the 19.3% of medium level of financial behaviour showing kids were changed in to the high level financial behaviour showing kids after using the Smart Money Kit.

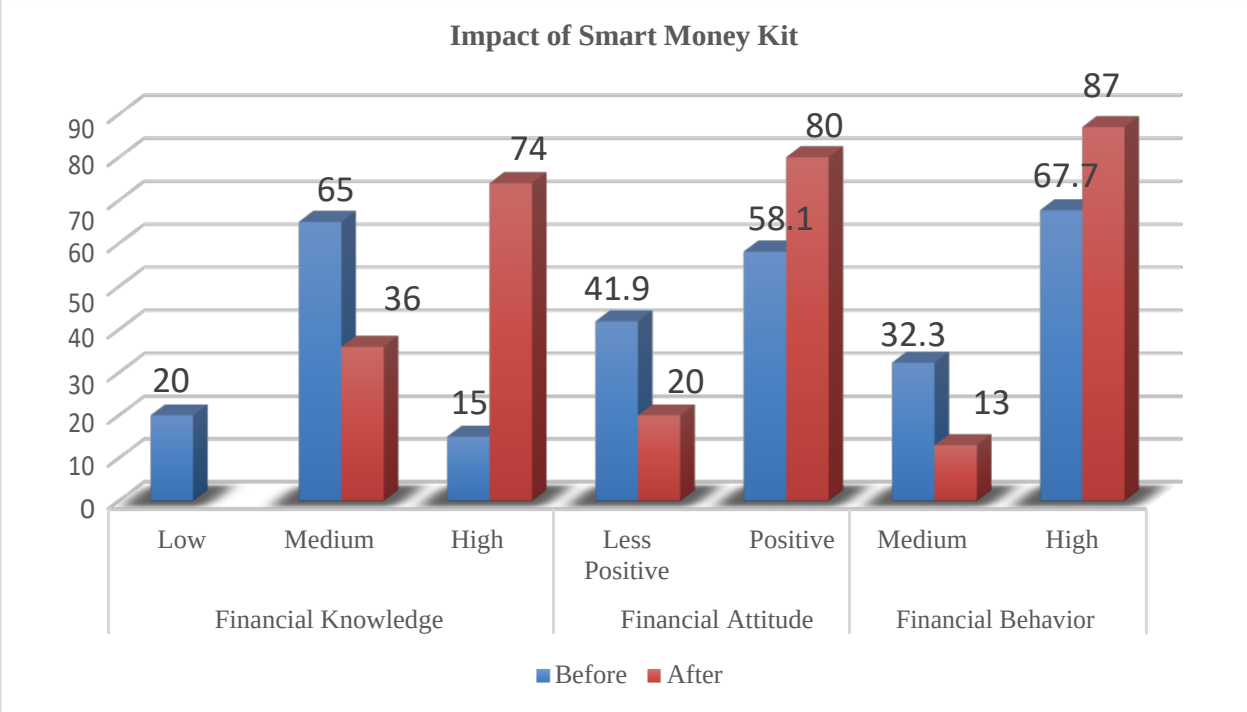

Figure 3: Impact of Smart Money Kit on Children's Financial Knowledge, Financial Attitide and Financial Behavior

CONCLUSION

Gamification is utilized in several distinct settings mostly business and marketing, yet we further desired to exhibit its applicability and significance in the educational environment also. Therefore, the gamification was integrated to Smart Money Kit to teach money management skills and financial literacy for kids. It increases the kids' inspiration to grb them effectively and connect with children in a friendly competitive environment with different students. Furthermore, it is a compelling way to deal with roll out positive improvement in kids' behavior and attitude towards learning, to increase their motivation and commitment. According to the results of the study, 59% increment in the financial knowledge, 21.9% incremnt in the positive financial attitudes and 19.3% increment in the financial behaviour of kids were enhanced after using the Smart Money Kit.

Financial incapability among Malaysians is also due to lack of knowledge and skills, thus leading to lower financial well-being (Mokhtar, Dass, Sabri, & Ho, 2018) and another reason for personal financial problems is lower level of financial illiteracy of individuals and households (Lusardi & Tufano, 2009). Further, it was found that improvement in financial literacy leads to a positive impact on the individual's personal livelihood. People with a high level of financial knowledge are reported to have less stress and less financial disputes among their families (Taft, Hosein, & Mehrizi, 2013). Hence, Smart Money Kit is the potential key to enhance the financial literacy and money management skills among the Malaysian children to produce a financially prudent consumer in the future.

REFERENCES

Anderson, J., & Barnett, M. (2011). Using video games to support pre-service elementary teachers learning of basic physics principles. *Journal of Science Education and Technology*, *20*(4), 347-362. Doi: 10.1007/s10956-010-9257-0.

Bonde, M. T., Makransky, G., Wandall, J., Larsen, M. V., Morsing, M., Jarmer, H., & Sommer, M. O. (2014). Improving biotech education through gamified laboratory simulations. *Nature Biotechnology*, *32*(7), 694-697. Doi.org/10.1038/nbt.2955.

Borden, L. M., Lee, S. A., Serido, J., & Collins, D. (2008). Changing college students' financial knowledge, attitudes, and behavior through seminar participation. *Journal of family and economic issues*, *29*(1), 23-40. Doi:10.1007/s10834-007-9087-2.

Campenhout, G. V. (2015). Revaluing the role of parents as financial socialization agents in youth financial literacy programs, *Journal of Consumer Affairs*, *49*(1), 186-222. Doi: doi/full/10.1111/joca.12064.

Caponetto, I., Earp, J., & Ott, M. (2014). Gamification and education: A literature review. In 8th European Conference on Games Based Learning (pp. 50-57). Germany: ECGBL.

Cox, C. D., Cheon, J., Crooks, S. M., & Lee, J. (2017). Use of Entertainment Elements in an Online Video Mini-Series to Train Pharmacy Preceptors. *American Journal of Pharmaceutical Education*, *81*(1), 1-13. Doi:full/10.5688/ajpe81112.

Dandashi, A., Karkar, A. G., Saad, S., Barhoumi, Z., Al-Jaam, J., Saddik, A. E. (2015). Enhancing the Cognitive and Learning Skills of Children with Intellectual Disability through Physical Activity and Edutainment Games. *International Journal of Distributed Sensor Networks*, *11*(6), 165. Doi:10.1155/2015/165165.

Dichev, C., & Dicheva, D. (2017). Gamifying education: What is known, what is believed and what remains uncertain: A critical review. *International Journal of Educational Technology in Higher Education*, *14*(9), 1-36. Doi: 10.1186/s41239-017-0042-5.

Hamari, J., Koivisto, J., Harri, S. (2014). Does Gamification Work? - A literature review of empirical studies on gamification. Proceedings of the 47th Hawaii International Conference on System Sciences, Hawaii, USA, January 6-9: 3025-3034. Doi:10.1109/HICSS.2014.377.

Holden, K., Kalish, C., Scheinholtz, L., Dietrich, D., & Novak, B. (2009). Financial literacy programs targeted on pre-school children: development and evaluation. (Working Paper 2009-009, La Follette School of Public Affairs, University of Wisconsin, Madison, Wisconsin, 2009). Retrieved on 22/10/2019 from https://www.lafollette.wisc.edu/images/publications/workingpapers/holden2009009.pdf.

Huang, W. H., & Soman, D. (2013). Gamification of Education. Toronto: University of Toronto. Retrieved on 21/10/2019 from http://inside.rotman. utoronto.ca/ behavioural economicsinaction/.

Kapp, K. M. (2013). *The gamification of learning and instruction fieldbook: Ideas into practice*. John Wiley & Sons.

Kim, J., and Chatterjee, S. (2013). Childhood financial socialization and young adults' financial management, *Journal of Financial Counseling & Planning*, *24*(1), 61.

Kozup, J., & Hogarth, J. M. (2008). Financial literacy, public policy, and consumers' self- protection-More questions, fewer answers. *Journal of Consumer Affairs*, *42*(2), 127-136. Doi:10.1111/j.1745-6606.2008.00101.x.

Liao, C. C., Chen, Z. H., Cheng, H. N. H., Chent, F. C., & Chan, T. W. (2011). My-mini-pet: A handheld pet-nurturing game to engage students in arithmetic practices. *Journal of Computer Assisted Learning*, *27*(1), 76-89. Doi: 10.1111/j.1365-2729.2010.00367.x.

Linehan, C., Kirman, B., Lawson, S., & Chan, G. (2011). Practical, appropriate, empirically validated guidelines for designing educational games. In ACM Annual Conference on Human Factors in Computing Systems (pp. 1979-1988). Canada: Vancouver.

Lusardi, A., Mitchell, O. S., & Curto, V. (2010). Financial literacy among the young, *Journal of Consumer Affairs*, *44*(2), 358-380. Doi: 10.1111/j.1745-6606.2010.01173.x.

Lusardi, A., & Tufano, P. (2009). Teach workers about the perils of debt. *Harvard Business Review*, *87*(11), 22- 24.

Lynch-Arroyo, R., & Asing-Cashman, J. (2016). Using edutainment to facilitate mathematical thinking and learning: An exploratory study. *Journal of Mathematics Education, 9*, 37-52.

McGonigal, J. (2011). *Reality is broken: Why Games Make Us Better and How They Change The World.* Johathan Cape, London.

Moffitt, T. E., Arseneault, L., Belsky, D., Dickson, N., Hancox, R. J., Harrington, H. L., Houts, R., Poulton, R., Roberts, B. W., Ross, S., Sears, M. R., Thomson, W. M., and Caspi, A. (2011). A gradient of childhood self-control predicts health, wealth, and public safety. *Proceedings of the National Academy of Sciences*, *108*(7), 2693-2698. Doi: 10.1073/pnas.1010076108.

Mokhtar, N., Dass, T. M., Sabri, M. F., & Ho, C. S. F. (2018). A preliminary evaluation of financial literacy in Malaysia. *Journal of Wealth Management & Financial Planning, 5*, 3-16.

Muntean, C. (2011). Raising engagement in e-learning through gamification. 6th International Conference on Virtual Learning ICVL, (pp. 323-329).

National Consumer and Financial Literacy Framework. (2005). Retrieved on 21/10/2019 from www.mceetya.edu.au/verve/resources/Financial_Literacy_Framework.pdf.

O'Neil-Haight, M. (2010). Educator teams up to teach finance to young children. *Journal of Family and Consumer Sciences*, *102*(2), 43-47.

Papastergiou, M. (2009). Digital game-based learning in high school computer science education: Impact on educational effectiveness and student motivation. *Computers & education*, *52*(1), 1-12. Doi: 10.1016/j.compedu.2008.06.004.

Rahman, A., Ibrahim, I. H., Abidin, T. M. T. Z., & Fauzi, A. A. M. (2017). Gamification in Islamic education based on Global Zakat Game: Bijak zakat version 1.0 (GZG). Al-Qanatir: *International Journal of Islamic Studies*, *6*(1), 1-9.

Rapeepisarn, K., Wong, K. W., Fung, C. C., & Depickere, A. (2006). Similarities and differences between learn through play and edutainment. Perth: Murdoch University. pp. 28-32. In: Proceedings of the 3rd Australasian Conference on Interactive Entertainment, 4-6 December 2006.

Retta, G., & Marquis, G. (2016). The Flipped Classroom: A comparison of student performance using instructional videos and podcasts versus the lecture-based model of instruction. *Issues in Informing Science & Information Technology*, 13, 1-13. Doi:10.28945/3461.

Robson, K., Plangger, K., Kietzmann, J., McCarthy, I. & Pitt, L. (2015). Is it all a game? Understanding the principles of gamification. *Business Horizons, 58*(4): 411-420. Doi:10.1016/j.

Rosas, R., Nussbaum, M., Cumsille, P., Marianov, V., Correa, M., Flores, P., … & Salinas, M. (2003). Beyond Nintendo: Design and assessment of educational video games for first and second grade students. *Computer Education*, *40*(1), 71-94. Doi: 10.1016/S0360-1315(02)00099-4.

Sabri, M. F., & MacDonald, M. (2010). Savings behavior and financial problems among college students: The role of financial literacy in Malaysia. *Crosscultural Communication, 6*(3), 103-110. Doi:10.3968/j.ccc.1923670020100603.009.

Sabri, M. F., MacDonald, M., Hira, T. K., & Masud, J. (2010). Childhood consumer experience and the financial literacy of college students in Malaysia. *Family and Consumer Sciences Research Journal, 38*(4), 455-467. Doi:10.1111/j.1552-3934.2010.00038.x.

Sharples, M. (2000). The design of personal mobile technologies for lifelong learning. *Computer Education, 34*(3-4), 177-193. Doi: 10.1016/S0360-1315(99)00044-5.

Sherraden, M. S., Johnson, L., William Elliott, W., Shirley Porterfield, S., & Rainford, W. (2007). School-based children's saving accounts for college: The I Can Save program, *Children and Youth Services Review*, 29(3), 294-312. Doi:10.1016/j.childyouth.2006.07.008.

Shim, S., Barber, B. L., Card, N. A., Xiao, J. J., and Serido, J. (2010). Financial socialization of first-year college students: The roles of parents, work, and education, *Journal of Youth and Adolescence, 39*(12), 1457-1470. Doi: 10.1007/s10964-009-9432-x.

Squire, K. (2005). Changing the game: What happens when video games enter the classroom. *Journal of Online Education, 1*(6), 1-8.

Taft, M. K., Hosein, Z. Z., & Mehrizi, S. M. T. (2013). The relation between financial literacy, financial wellbeing and financial concerns. *International Journal of Business and Management, 8*(11), 63-75. Doi: doi:10.5539/ijbm.v8n11p63.

Tang, N. (2017). Like father like son: how does parents' financial behavior affect their children's financial behavior? *Journal of Consumer Affairs, 51*(2), 284-311. Doi: 10.1111/joca.12122.

Totenhagen, C. J., Casper, D. M., Faber, K. M., Bosch, L. A., Wiggs, C. B., and Borden, L. M. (2015). Youth financial literacy: A review of key considerations and promising delivery methods, *Journal of Family and Economic Issues, 36*(2), 167-191. Doi: 10.1007/s10834-014-9397-0.

Trna, J. (2007). Edutainment or Education: Education possibilities of didactic games in science education. ICCP Brno Conference. Brno, Czech Republic. pp. 55-64.

Tüysüz, C. (2009). Effect of the computer based game on pre-service teachers' achievement, attitudes, metacognition and motivation in chemistry. *Scientific Research and Essays, 4*(8), 780-790.

Urban, C., Schmeiser, M., Collins, J. M., & Brown, A. (2015). State financial education mandates: It's all in the implementation. Washington, DC: FINRA Investor Education Foundation.

Wang, A. I., Zhu, M., & Satre, R. (2016). The effect of digitizing and gamifying quizzing in classrooms. In Proceedings of the 10th European Conference on Games Based Learning. University of the West of Scotland, Paisley, Scotland.

Weisberg, D. S., Hirsh-Pasek, K., Golinkoff, R. M., Kittredge, A. K., & Klahr, D. (2016). Guided play: Principles and practices. *Current Directions in Psychological Science, 25*(3), 177-182. Doi: 10.1177/0963721416645512.

Whitebread, D., Coltman, P., Jameson, H., & Lander, R. (2009). Play, cognition and self-regulation: What exactly are children learning when they learn through play?. *Educational and Child Psychology, 26*(2), 40.