General View about Games based Learning: Literature Review

Ghaliya AlFarsi[1,2], Ragad M. Tawafak[2,3], Abdalla ElDow[2], Sohail Iqbal Malik[2], Jasiya Jabbar[2], Abir Al Sideiri[2]

[1]*College of Graduate Studies, Universiti Tenaga Nasional, Information Technology department, Malaysia*
[2]*AlBuraimi University College, Buraimi, Oman*
[3]*Faculty of Computing, Universiti Malaysia Pahang, Pahang, Malaysia*

Keywords: Game in learning; Artificial Intelligence; Academic Performance; Student motivation.

Abstract: We are living in the age of technology, where everything is developing and spreading fast around us. In recent years, new technologies increased in the field of Education to develop and improve student performance in every area of their program. However, still, games-based learning was not in a hotspot filed of educations not profoundly discussed. The purpose of this study is to generate a literature review about the different learning method which help students to enhance their learning study. The process is how many studies motivated students to improve their performance by searching key focused on the game application for learning because it's more fun for students. The paper outcome prove the needs to use game-based learning that help students to share their information, knowledge, and feedback on the educational process. As a result, this review paper reveals and have proven to be an effective way to provide a suitable environment for motivating students to learn; it raises the student's level of Education.

1 INTRODUCTION

An application game defined as an electronic game where all joined participants follow certain policies and clear rules. Chu, & Fowler, (2020) discusses educational games that use games to support education and learning as shown in Figure 1. The game is a support tool that complements traditional teaching methods to enhance the student skills and experience as an assistance tool work in parallel with normal teaching to improve critical thinking and student creativity (Blanié, Amorim, & Benhamou, 2020; AlFarsi, & ALSinani, 2017).

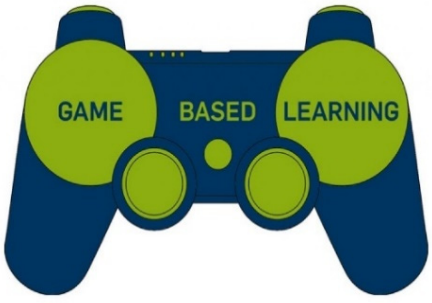

Figure 1: Game-Based Learning

Learning should not be considered boring and does not mean that students learn concepts through repetition or padding and memorize them with understanding (Lameras, Arnab, Dunwell, Stewart, Clarke, & Petridis, 2017). Some teachers have started using online platforms to help with education (Tawafak, Abir, Ghaliya, Maryam, Sohail, and Jasiya, 2019; Tatnall, 2020) therefore, learners or students can participate as online with a lot of offered activities and use the peer-to-peer interaction with students. This type of learning can improve a student's educational performance, but it can be difficult to increase educational motivation (Tawafak, Awanis, and Ruzaini, 2019; Thawonmas, Togelius, and Yannakakis, 2019.). Therefore, how students are interested in the course and their willingness to develop their knowledge has become a new important field to the researchers and programmers.

From the previous studies using video game in educations were found slightly effective instructions for teaching mathematical course in schools (Tokac, Novak, Thompson, 2019). Game-based learning used and recommended for student who studies with low self-esteem and they needs a lot of method to improve their management skills (Vásquez, Peñafiel, Cevallos, Zaldumbide, and Vásquez, 2017).

Alfarsi, G., Tawafak, R., ElDow, A., Malik, S., Jabbar, J. and Sideiri, A.
General View about Games based Learning: Literature Review.
DOI: 10.5220/0010304800003051
In *Proceedings of the International Conference on Culture Heritage, Education, Sustainable Tourism, and Innovation Technologies (CESIT 2020)*, pages 139-145
ISBN: 978-989-758-501-2

However, fewer applications related to games in the educational fields? Therefore, this study tries to decrease this gap and design a literature review to highlights the applications related to the use of games in education (Yorozu, Hirano, Oka, and Tagawa. 1982).

2 GAME-BASED LEARNING

In the traditional university courses at designed, still follow the policy to constant memorization and recitation when learning the course material for most students, especially course programming that is a bottleneck for students doing homework (ALFARSI, M, & ALSINANI, 2017). Therefore, students lost faith in the curriculum, and as a result, learning incentives diminished, giving up Chu, & Fowler, (2020). To overcome this collapse, this study will investigate among studies that give attention to use games as a tool to help students understanding and motivating them to keep online learning as shown in Figure 2 (Tawafak, Sohail, and Ghaliya. 2020; Troussas, Krouska, and Sgouropoulou, 2020). Figure 2 shows a variety of technologies used to enhance the learning and game-based learning is an essential part of the educational process. This allows students to self-learn their course-related knowledge, so they can win the next game and improve their learning effectiveness.

Figure 2: Game-Based Learning applications and usability in Life

Game-Based Learning in educational strategies studies use this facility in learning especially with complex courses Blanié, Amorim, & Benhamou, (2020) Of these, education stimulus was often used as an educational strategy to improve learning outcomes (ALFarsi, Jasiya, Ragad, Sohail, Abir, Maryam, and Hidayah, 2020). Also, game-based learning aims to develop enthusiastic learners, motivate and engage students, reduce monotonous learning methods, and help students focus, self-esteem, and memory. Various types of educational games are applied and used in educational institutions, schools, and homes (ALFARSI, M, & ALSINANI, 2017). The use of games in education is primarily focused on improving critical thinking skills while teaching specific topics by allowing students to think outside the box while adhering to the rules. Other games can be used to limit the improvement of knowledge on a particular topic, and the most popular are math games (Frey, Fisher, & Smith, 2019; Tawafak,., & Romli, Ruzaini , and Sohail, 2019).

2.1 Game-based Learning Advantages

1. Using games in educational education to help students remember is to encourage students to actively participate and to remember what they have learned. Learning does not mean memorizing, but students can use the game to memorize important points that can be applied in real situations through exams (Tawafak, & Romli, Ruzaini and Sohail, 2019; Mathew, Malik, & Tawafak, 2019; Alfarsi, Jasiya, Ragad, Abir, and Maryam, 2019; Tawafak, 2019).
2. Because we live in a world dominated by innovation, our ability to use optics and computers is very important. Students can prepare for the work world by learning visual and computer skills through games (Pea, 1992).
3. Help to improve critical thinking and problem solving through a sequence of rules and conditions of the game (Mathew, Malik, & Tawafak, 2019; Pea, 1992).
4. Using games that are useful for students with attention disabilities is a fun way to learn, so it can attract students' attention. Studies have shown that web-based games can help with children's attention problems (Clustering, 2019; Tatnall, 2020).

2.2 Game-based Learning Disadvantages

However, educational games have drawbacks that need to be addressed (Tatnall, 2020; Tatnall, 2019).

1. If a teacher has no control over such an environment, it becomes difficult to provide a platform for students to play review games.
2. Students can access other harmful platforms.

3. Some student can lose the interconnection and interacting with normal life
4. Keep continuous use of these applications can affected negatively to the health in risk with eye strain and backbone pain.
5. Some kind of assistance equipment's can be an expensive device.

3 LITERATURE REVIEW

This section will present some literature review articles that belong to the paper title and only review the papers related to game-based learning. (Khan, Ahmad, & Malik, 2017). were mentioned several experiences in research on game-based learning applications to increase student engagement, and students have done to measure the effectiveness of games and education. therefore, give education to students who don't have games and note the low student engagement (Alfarsi, Sulaiman, Tawafak, Malik, Jabbar, & Alsidiri, 2019; Calabor, Mora, and Moya, 2019). Then, when some games were added to the learning, many students participated, became more active and interested in studying. Several educational studies use game-based learning to help students learn. Of these, education stimulus was often used as an educational strategy to improve learning outcomes. The purpose of this type of game-based learning is to stimulate the learner's learning motivation rather than the main focus of the instructional instruction. (Ketelhut, & Schifter, 2011) said that in a recent educational environment, the game-based learning environment has the following characteristics:

1. Use the game method to motivate students to rethink their original knowledge
2. This game provides instant feedback to help teachers understand the student's actual teaching progress and make various suggestions promptly
3. Through the game, students can share a lot of information and acquis knowledge.
4. Learning through games can ensure that students are not bored by comfortably facing learning.
5. The game usually comes with discussion and social networking activities.

Figure 3 shows the usability of work with game-based to improve the effectiveness of AI. Also, Figure 3 highlights the powerful of technology development especially in game-based learning to influence significantly on social impact and educational development. Competitive learning takes place within the framework of organized activities, where students compete with each other for a specific purpose and can only be rewarded if they outperform their peers in the competitive process (Stahl, & Stahl, 1991).

Figure 3: Artificial Intelligence in General

Competitive learning is suitable for students especially with game-based learning that to compete with each other and improve student learning effectiveness (Tawafak, Awanis and Ruzaini, 2019). To support the teaching and learning process, teachers provide additional marks or other rewards for those used game-based to enhance the student's competitive needs (Tawafak, Awanis and Ruzaini, 2019). (Guillén-Nieto, & Aleson-Carbonell, 2012). Discuss the importance of gaming in education as the potential benefits of using educational entertainment to complement the trends of the regular semester are guaranteed. The basic rule for developing an educational game plan is to revive motivation (Guillén-Nieto, & Aleson-Carbonell, 2012).

The placement of the educational game is a special effort to achieve the goal of the educational game to ensure that the educational activity can be used for educational activities together with the coordinating part of the educational process. The most important thing in preparing an educational game is to gather reasons for training, refine the educational spirit, and separate the game (Tawafak, Awanis, Sohail, Mohanaad, and Ghaliya, 2019). (Tawafak, Awanis, and Maryam, 2019; Tokac, Novak, and Thompson, 2019). Most researchers discuss the importance of games in education as they help to enhance student learning by competing with other students to enhance student love for learning and achieve more success (Tawafak, Awanis, and Maryam, 2019; Calabor, Mora, and Moya, 2019).

In conclusion, all these studies used game-based learning as the first indicator to motivate students to

increase their knowledge and to enhance their academic performance. however, still these studies missed the easy mechanism of presenting a course to encourage the students to engage in game-based learning. also, what's are the general factors determined to highlight the learning process towards game-based learning.

4 METHODOLOGY

This mission aims to avoid tedious routine educational resources for students, maximize students' desire for study, and provide a pleasant learning environment that fits their game style. This method activates the Google engine has used and got numerous books and studies related to the topic (Games for Education Enhancement).

The total collected papers reached more than 3000 articles and 600 books on the selected subject. after filtering them from duplications, reports, catalogs, at the final step 6 papers used in the above literature review. Some studies include a student questionnaire explaining the importance of motivating students through games that support education. A pilot study used in each article to test and validate the student's motivation and enhance their performance (Tawafak, Awanis and Maryam, 2019).

All surveys derived from strongly related papers, revised by experts in the game programming field and grammatical languages (Tawafak, Awanis and Ruzaini, 2018; Pellas, Fotaris, Kazanidis, and Wells, 2019). Then survey validation by checking the quality and the connection between the questions and the level of understanding the main point from each question is clear enough to give the right feedback.

Figure 4 show the steps of collecting data and the ways of finalizing the work in each step of 6 phases of development. The method started by understanding the business requirements determined by scheduling planning and identifying the problem of the project that is to identify papers to conduct a literature review on game based learning. Next phase is data collection that is searching related papers in game based learning. Third, data preparation, modelling data to which type of method and most common used through parallel versions development to get sufficient outcomes in a proper time schedule. Then analyse these collected data through evaluation process where the sample of papers were selected from about fifty related works.. Finally, deployment of the results as a review on all papers related to the aim of this paper.

Figure 4: General Method of AI relevant data

5 DISCUSSION

The use of digital games has great potential in higher education as a way to provide active, fun, and engaging online education. According to the previous research data analysis, the results show the improvement of students' interest in using game-based. Even though the participants were limited in that universities with its student of selected courses and sections.

The improvement level was about 15% more than the normal class in programming courses, while the improvement limited to less than7% in complex courses even in mathematical courses (Tawafak, Muamer, Ruzaini, Mohanaad, and Vitaliy. 2018; Pellas, Fotaris, Kazanidis, and Wells, 2019). Both students and teachers have found an effective way for this game to develop and enhance a lecture-themed situation and encourage experimentation with new skills.

Another beneficial result from the gaming experience helped build the relationship and cohesion of the student team, which was especially valuable since the start of the game early in the semester and there was a lot of team activity and results later in the course (Alfarsi, Sulaiman, Tawafak, Malik, Jabbar, & Alsidiri, 2019).

For example, in the financial cycle, a place can be a bank and an ATM, in a marketing cycle it can be a retail seller, and in the liberal arts, you can choose historical monuments and libraries. After that, teachers must carefully build challenges that meet the course's learning goals. The fun and competitive aspect of the game should translate well into other

fields. The authors also believe that the approach and results are relevant and beneficial outside of the higher education sector, for example in areas such as the company environment, new employee education, and employment (Alfarsi, Jasiya, Ragad, Sohail, Abir, and Maryam, 2019).

Portable digital games can improve both "hard" skills (eg skills or job-specific skills) and "soft" (eg teamwork) by adding complementary motivational elements (eg fun and competitive). Official training method. Alternatively, this particular game can be played by an individual or student pairs. This reduces coordination issues for large teams (Ketelhut, & Schifter, 2011; Brezovszky, McMullen, Veermans, Hannula-Sormunen, Rodríguez-Aflecht, Pongsakdi, Laakkonen, and Lehtinen, 2019).

If the coach sets a large and continuous-time at his disposal, such as a 3-hour time slot, you can even play the game at the same time. However, teachers should be careful when estimating how long it will take for the time to play the game to complete until it is needed to complete the game task. Finally, for all digital games, it's important to pay attention to the learning curves that students face when using technology and take appropriate steps to reduce technical barriers.

6 CONCLUSION

There are many opportunities to implement the concept of the game in education, and there are many types of games available in the learning process, including problem-solving, practice, simulation, puzzle, and educational games. In this paper, the main purpose was to highlights some of the literature reviews by analyzing 6 core-papers. Also, the literature review determined the studies related to game-based focused on the rapidly emerging learning paradigm and practice using computer games and encouraging the learning process, which determined positively for both of students and teachers in their experience.

This review of general game-based learning summarizes some of the benefits of applying game-based learning to improve student performance. Social game mechanics increase student motivation and learning needs, develop stronger relationships with team members and colleagues, and ultimately help the knowledge discovery process. The methodology, explained in common figure to show the six phases to follow through any system development to enhance a game-based. In general, we need to combine traditional gaming frameworks with clear pedagogical elements to help students achieve their full educational potential. In conclusion, we hope that educational institutions will introduce game applications to improve learning.

REFERENCES

ALFarsi, G. and ALSinani, M., 2017. Developing a mobile notification system for al Buraimi University College students. International Journal of Information Technology, 1(1), pp.10-16.

ALFARSI, G.M.S., OMAR, K.A.M. and Alsinani, M.J., 2017. A rule-based system for advising undergraduate students. Journal of Theoretical & Applied Information Technology, 95(11).

Alfarsi, G., Jabbar, J., Tawafak, R.M., Alsidiri, A. and Alsinani, M., 2019, December. Techniques For Face Verification: Literature Review. In 2019 International Arab Conference on Information Technology (ACIT) (pp. 107-112). IEEE.

Alfarsi, G., Sulaiman, H., Tawafak, R.M., Malik, S., Jabbar, J. and Alsidiri, A., 2019. A Study of Learning Management System with E-Learning.

Al Farsi, G., Jabbar, J., Tawafak, R.M., Malik, S.I., Alsidiri, A. and Alsinani, M., 2020. Mobile Application System Supported BUC Students Services and Learning. International Journal of Interactive Mobile Technologies, 14(9).

Alfarsi, G., Jabbar, J., Tawafak, R.M., Malik, S.I., Alsidiri, A. and Alsinani, M., Using Cisco Packet Tracer to simulate Smart Home. International Journal of Engineering Research & Technology (IJERT) , Vol. 8 Issue 12, December-2019

ALFarsi, G.M., Jabbar, J. and ALSinani, M., 2018. Implementing a Mobile Application News Tool for Disseminating Messages and Events of AlBuraimi University College. International Journal of Interactive Mobile Technologies (iJIM), 12(7), pp.129-138.

ALFarsi, G. and ALSinani, M., 2017. Developing a mobile notification system for al Buraimi University College students. International Journal of Information Technology, 1(1), pp.10-16.

Blanié, A., Amorim, M. A., & Benhamou, D. (2020). Comparative value of simulation by gaming and a traditional teaching method to improve clinical reasoning skills necessary to detect patient deterioration: a randomized study in nursing students. BMC medical education, 20(1), 1-11.

Brezovszky, B., McMullen, J., Veermans, K., Hannula-Sormunen, M.M., Rodríguez-Aflecht, G., Pongsakdi, N., Laakkonen, E. and Lehtinen, E., 2019. Effects of a mathematics game-based learning environment on primary school students' adaptive number knowledge. Computers & Education, 128, pp.63-74.

Calabor, M.S., Mora, A. and Moya, S., 2019. The future of'serious games' in accounting education: A Delphi study. Journal of Accounting Education, 46, pp.43-52.

Chu, M. W., & Fowler, T. A. (2020). Gamification of Formative Feedback in Language Arts and Mathematics Classrooms: Application of the Learning Error and Formative Feedback (LEAFF) Model. International Journal of Game-Based Learning (IJGBL), 10(1), 1-18.

Clustering, A. S. International Arab Conference on Information Technology (ACIT). Higher Education, 165, 170. (2019)

Eldow, A., Shakir, M., Talab, M.A., Muttar, A.K. and TAWAFAK, R.M., 2006. LITERATURE REVIEW OF AUTHENTICATION LAYER FOR PUBLIC CLOUD COMPUTING: A META-ANALYSIS.

Frey, N., Fisher, D., & Smith, D. (2019). All learning is social and emotional: Helping students develop essential skills for the classroom and beyond. ASCD.

Guillén-Nieto, V., & Aleson-Carbonell, M. (2012). Serious games and learning effectiveness: The case of It'sa Deal!. Computers & Education, 58(1), 435-448.

Jabbar, J., Malik, S.I., AlFarsi, G. and Tawafak, R.M., The Impact of WhatsApp on Employees in Higher Education. In Recent Advances in Intelligent Systems and Smart Applications (pp. 639-651). Springer, Cham.

Ketelhut, D. J., & Schifter, C. C. (2011). Teachers and game-based learning: Improving understanding of how to increase efficacy of adoption. Computers & Education, 56(2), 539-546.

Khan, A., Ahmad, F. H., & Malik, M. M. (2017). Use of digital game based learning and gamification in secondary school science: The effect on student engagement, learning and gender difference. Education and Information Technologies, 22(6), 2767-2804.

Lameras, P., Arnab, S., Dunwell, I., Stewart, C., Clarke, S., & Petridis, P. (2017). Essential features of serious games design in higher education: Linking learning attributes to game mechanics. British journal of educational technology, 48(4), 972-994.

Mathew, R., Malik, S.I. and Tawafak, R.M., 2019. Teaching Problem Solving Skills using an Educational Game in a Computer Programming Course. Informatics in Education, 18(2), pp.359-373.

Malik, S.I., Mathew, R., Tawafak, R.M. and Khan, I., GENDER DIFFERENCE IN PERCEIVING ALGORITHMIC THINKING IN AN INTRODUCTORY PROGRAMMING COURSE. Proceedings of EDULEARN19 Conference 1st-3rd July 2019, Palma, Mallorca, Spain, p.8246-8254.

Malik, S., Al-Emran, M., Mathew, R., Tawafak, R. and AlFarsi, G., 2020. Comparison of E-Learning, M-Learning and Game-based Learning in Programming Education–A Gendered Analysis. International Journal of Emerging Technologies in Learning (iJET), 15(15), pp.133-146.

Pea, R. D. (1992). Augmenting the discourse of learning with computer-based learning environments. In Computer-based learning environments and problem solving (pp. 313-343). Springer, Berlin, Heidelberg.

Pellas, N., Fotaris, P., Kazanidis, I. and Wells, D., 2019. Augmenting the learning experience in primary and secondary school education: A systematic review of recent trends in augmented reality game-based learning. Virtual Reality, 23(4), pp.329-346.

Stahl, N. N., & Stahl, R. J. (1991). We can agree after all! Achieving consensus for a critical thinking component of a gifted program using the Delphi technique. Roeper Review, 14(2), 79-88.

Tawafak, F.R.M., The Comprehension Theories Of Continuous Intention To Use Tel With E-Learning Models In Educations. TABLE OF CONTENT ID TITLE AUTHOR PAGE NO., p.41. ICOEL 2019. International Conference on E-Learning, 2019

Tatnall, A., 2020. Editorial for EAIT issue 2, 2020. Education and Information Technologies, 25(2), pp.647-657.

Tawafak, R.M., Romli, A.B., Abdullah, R., Alfarsi, G., Jabbar, J., Esbai, R., Sharaf, S., Khalifa, M., Ahmed, H., Qamber, I.S. and Abdelhameed, W., Competitiveness & Quality.

Tawafak, R.M., Romli, A. and Arshah, R.A., 2019, August. E-learning prospect on improving academic performance in Omani Universities. In IOP Conference Series: Materials Science and Engineering (Vol. 551, No. 1, p. 012033). IOP Publishing.

Tawafak, R.M., Romli, A.B. and Arshah, R.B.A., 2019, February. E-learning Model for Students' Satisfaction in Higher Education Universities. In 2019 International Conference on Fourth Industrial Revolution (ICFIR) (pp. 1-6). IEEE.

Troussas, C., Krouska, A. and Sgouropoulou, C., 2020. Collaboration and fuzzy-modeled personalization for mobile game-based learning in higher education. Computers & Education, 144, p.103698.

Tawafak, R.M., Romli, A., Malik, S.I., Shakir, M. and Alfarsi, G.M., 2019. A systematic review of personalized learning: Comparison between E-learning and learning by coursework program in Oman. International Journal of Emerging Technologies in Learning (iJET), 14(09), pp.93-104.

Tawafak, R.M., AlSideir, A., Alfarsi, G., Al-Nuaimi, M.N., Malik, S.I. and Jabbar, J., 2019. E-learning Vs. Traditional Learning for Learners Satisfaction. E-learning, 29(3), pp.388-397.

Tokac, U., Novak, E. and Thompson, C.G., 2019. Effects of game-based learning on students' mathematics achievement: A meta-analysis. Journal of Computer Assisted Learning, 35(3), pp.407-420.

Tawafak, R.M., Malik, S.I. and Alfarsi, G., 2020. Development of Framework from Adapted TAM with MOOC Platform for Continuity Intention. Development, 29(1), pp.1681-1691.

Tawafak, Ragad M., Awanis BT Romli, Ruzaini bin Abdullah Arshah, and Sohail Iqbal Malik. "Framework design of university communication model (UCOM) to enhance continuous intentions in teaching and e-learning process." Education and Information Technologies 25, no. 2 (2020): 817-843.

Thawonmas, R., Togelius, J. and Yannakakis, G.N., 2019. Artificial general intelligence in games: Where play meets design and user experience.

Tawafak, R.M., Romli, A.M. and Alsinani, M.J., 2019. Student assessment feedback effectiveness model for enhancing teaching method and developing academic performance. International Journal of Information and Communication Technology Education (IJICTE), 15(3), pp.75-88.

Tawafak, R.M., Romli, A.B. and Alsinani, M., 2019. E-learning system of UCOM for improving student assessment feedback in Oman higher education. Education and Information Technologies, 24(2), pp.1311-1335.

Tawafak, R.M., Romli, A.B. and Arshah, R.B.A., 2018. Continued intention to use UCOM: Four factors for integrating with a technology acceptance model to moderate the satisfaction of learning. IEEE Access, 6, pp.66481-66498.

Tokac, U., Novak, E. and Thompson, C.G., 2019. Effects of game-based learning on students' mathematics achievement: A meta-analysis. Journal of Computer Assisted Learning, 35(3), pp.407-420.

Tawafak, R.M., Mohammed, M.N., Arshah, R.B.A., Shakir, M. and Mezhuyev, V., 2018. Technology enhancement learning reflection on improving students' satisfaction in Omani universities. Advanced Science Letters, 24(10), pp.7751-7757.

Tawafak, R.M., Romli, A.B., bin Abdullah Arshah, R. and Almaroof, R.A.S., 2018. Assessing the impact of technology learning and assessment method on academic performance. EURASIA Journal of Mathematics, Science and Technology Education, 14(6), pp.2241-2254.

Tatnall, A., 2019. Editorial for EAIT issue 2, 2019. Education and Information Technologies, 24(2), pp.953-962.

Tawafak, R.M., Mohammed, M.N., Arshah, R.B.A. and Romli, A., 2018, February. Review on the effect of student learning outcome and teaching Technology in Omani's higher education Institution's academic accreditation process. In Proceedings of the 2018 7th International Conference on Software and Computer Applications (pp. 243-247).

Tawafak, R.M., Alfarsi, G., AlNuaimi, M.N., Eldow, A., Malik, S.I. and Shakir, M., 2020, April. Model of Faculty Experience in E-Learning Student Satisfaction. In 2020 International Conference on Computer Science and Software Engineering (CSASE) (pp. 83-87). IEEE.

Tawafak, R.M., Buraimi, O., Jabbar, J., Alfarsi, G., Malik, S.I., Romli, A. and Alsideiri, A., A Review Paper on Student-Graduate Advisory Expert system.

Tawafak, R., Romli, A., Malik, S. and Shakir, M., 2020. IT Governance Impact on Academic Performance Development. International Journal of Emerging Technologies in Learning (iJET), 15(18), pp.73-85.

Tatnall, A., Correction to: Editorial for EAIT issue 2, 2020.

Vásquez, S., Peñafiel, M., Cevallos, A., Zaldumbide, J. and Vásquez, D., 2017, July. Impact of Game-Based Learning on Students in Higher Education. In Proceedings of the 9th Annual International Conference on Education and New Learning Technologies (EDULEARN), Barcelona, Spain (pp. 3-5).

Yorozu, M. Hirano, K. Oka, and Y. Tagawa, "Electron spectroscopy studies on magneto-optical media and plastic substrate interface," IEEE Transl. J. Magn. Japan, vol. 2, pp. 740–741, August 1987 [Digests 9th Annual Conf. Magnetics Japan, p. 301, 1982].