

FROM LIVE INTERACTION TO VIRTUAL INTERACTION: ADDRESSING MORAL ENGAGEMENT IN THE DIGITAL ERA

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ABSTRACT

The interaction among the society at large has been shifted from direct interaction to virtual one across borderless space. However, it seems to have led to emerge the challenging issues such as cyber bullying, uncertain information and etc. An exposure on moral engagement such as trust, care, friendship, and commitment needs to pay a serious attention to provide a foundational framework in driving the user interaction in the digital era. This paper aims to explore the moral engagement in underlying virtual interaction by providing an innovative way to help the human society in a good life. This study attempts to investigate the moral engagement which can underlie the interaction from live to virtual basis. To achieve this, literature review from peer reviewed journals, conferences and books was conducted to propose the framework model of strengthening moral engagement in the digital era. By using keywords on moral values and live and virtual interaction, multiple research findings can be achieved from met-synthesis with integrating, evaluating and interpreting process. As a result, phenomenological and grounded theories and ideas extracted to identify their common features, elements, and functionalities can be integrated and used to propose a framework model. The findings reveal that to exposure the moral engagement with professional and ethical basis associated with the instructional strategy and application in virtual interaction, reference model demonstrates how the human with all the potency they behave can become a significant contribution to the society at large to enhance the abilities to improve their capacities to operate the technological tools wisely and appropriately. Considering the way to go further with more challenging issues in the virtual interaction like cyberbullying, uncertain information and etc., exploring moral engagement should be regarded to provide the framework of interactional basis with human communities such as trust, care, friendship, and commitment.

Keywords: *Live Interaction, Virtual Interaction, Moral Engagement, Digital Era*

1. INTRODUCTION

In the last decade, the way to interact with the society requires the skills which can underlie the running process appropriately and wisely in goodness and peaceful coexistence and this has to do with the It is necessary to enhance the abilities to improve capacities on how to operate the technology in appropriate way. The emergence of distinct facilities of technology could enable the human way to utilise in a wide range of fields. For example, smart technologies have introduced the various stakeholders in the society level among the users and other sectors such as businesses [1] and online learning and education [2] to improve performance, productivity, and to increase satisfaction [3]. Moreover, it also consolidates the instructional strategies in using social media within formal and informal learning [4]. This step is actually a transformation from the era of the live interaction into the virtual environment integrated with information technology (IT) to facilitate its process. It indicates that its current development enables us to move forward the way we look at the world from the traditional approach like face to face or alive interaction in getting information to the digital era with the industrial revolution. As a result, to increase the speed and breadth of knowledge, the evolutionary system integrated into the latest change of development which is advantageous among the society can create entirely on the benefit for human communities [5].

In order to reach this, attempts to help users possess wise understanding on the importance and implications of online actions within the digital identities in digital media should be engaged in the way to use properly conveniently. To improve human performance, expressing the human enhancement could be taken with human genetic engineering used to refer to the general application of the convergence of IT. It is necessary to take into account referring to foster positive implications of increased digital media use and address potential issues by proposing a reference model of professional and ethical based instruction in the digital era within emerging technologies and converging technologies. Thus, this paper will focus on strengthening the moral engagement in the virtual interaction with managing the digital usage in personal and social level.

2. LITERATURE REVIEW

2.1. About Live Interaction

The live interaction is understood as the way in which some individuals face and talk with facial expression integrated to the approach to express the statement [6]. The interaction among the society can be seen as an exchange between two or more individuals to transform information and this may build the community. It refers to the way to interact with the groups and even larger social groups where people may create the rules and system to exchange information from their experience. As a result, to enhance this stage, symbol would usually be used to expect the system to enable the social interaction [7]. By interacting with others, symbolic interactionism and ethnomethodology into psychosocial studies, conversational analysis and human-computer interaction can be engaged into the reality which is seen as social, developed interaction with others [8]. The way on people's interactions can create the social order in understanding each other fully through the response to the user's action. Such means which can be presented into the request or choices refer to the user initiated into the action.

In this regard, the interaction in the process of exchanging the roles of sender and receiver in the communication process can be analysed in the model to explain as a feedback in broadening the communication. As a process to enable the receiver to undertake the role of the sender in controlling the content of the medium [9], the initiative to interact with someone in real life may enhance the facial expression with designing the words which can be conveyed. In particular, it represents to take perfectly in the way that needs to pay attention to any field, like social interaction or school one which is including innovative teaching [10] and innovative learning [11]. Since in this modern era new technologies offers conveniences released at this time, the people can access information to share with others in rapid expansion, like in Facebook, twitter, and Instagram [12]. In this view, interacting with the objects of the virtual world can be described as the ability to move within the virtual world to explore with interactive environment. In the midst of environments and virtual characters, the multi user in communicating with others is replaced interactively by action-reaction approaches to signify the virtual world in reacting to the users' actions.

2.2. Virtual Interaction in Cyberspace

The way to interact with in cyberspace is widely seen as the activity by which the users do with their ability to move into the virtual world (Jones, 1997). It refers to how the objects of the virtual world can be achieved in exploring the virtual world. The kind of this environment looks interactive to enable the interaction alive to the virtual one [7], where the initial enhancement to achieve the way of learning refers to manage the digital tool as an attempt to keep nurturing compassionate empathy [8]. The features could enable to enhance the interaction skills with the technological developments such as Facebook, twitter, Instagram, LinkedIn and line. All these have to do with the additional sources integrated with visual explanation into making interactive and interesting circumstance such as the learning aid in school context [2] and also teaching competencies in bi data era [9]. Easily making enjoyable in getting chance to empower the technological tool needs to balance with engagement of moral values to drive the way to organise appropriately. In particular, the way on how to perform moral engagement to adopt digital tool should be integrated with professional skill [10]. As a result, the approach to drive the process in transforming the benefit of technology in the society is needed by referring to professional and ethical engagement in a right way.

In addition, the sense of self-esteem and confidence can be achieved through exposing the internet use among the society in getting information on how to describe technological tool with the useful ways to enable them to utilize it appropriately [11]. Characterised by technology with its functionality in the field of economics, education and even for security purpose for example, many matters need to be engaged with the personal ability in the operational level in daily life. Empowering the way with adaptive technology skills could be engaged to have careful engagement in the digital information age [10]. Through an attempt to control such changes and diffusion in the digital era, understanding of the basic role to adopt is required to see its impact from technology to take into account building sustainable relationship into the social and educational aspect which technology can help facilitate [12]. It is important to note that this era where virtual acts are essentially more dynamic than direct one relies on the knowledge which is produced frequently to adapt the changing environment. With this regard, the role of guiding the humans in understanding the knowledge on how

to communicate and relate with others plays a significant attainment to mix and match the ways which can be developed in a dynamic scale. It takes seriously on how to generate in utilizing technology freely available on the Internet where the control ability has the valuable insights to drive it appropriately.

2.3. Chances and Challenges of Interaction Pattern in Digital Era

The current pattern of how to communicate with others can be accessed through borderless space apart from geographic location [13]. As a result, immersion in a virtual reality allows in accessing the trend on reaching each other by mobile information and social media. Along with easiness to facilitate in connecting users with others, finishing task and duty for the student's learning, for example, when this process is unlikely simultaneous with instructor guidance, the issue of cheating will potentially emerge among them [14; 15]. In terms of teaching basis, adaptive teaching competencies in big data era, for instance, through process and management skills should be engaged into in the application guideline to support assessing the multi-channels of sources of knowledge to extract new insights of value in exploring the adaptive teaching competencies [9]. In addition, the habit in operating smartphone as one of examples in the digital era has also been integrated to the aid and prevails of students' learning [4] and with innovative therapy service [16]. Moreover, the other issue on the technological development is potentially emerging the lack of concentration which may give an impact to the focus potentially leading to the academics [17] and to some extent sports [18] and extracurricular activities [19].

Moreover, the challenges like common complaint among the teacher and student relationship have been emerged to influence the negative habits such as the lack of respectful attitude for students to the teacher, technological addiction [11], and even cheating [1;15]. All these refer to the trend which directs to the challenging issue in the digital era. It is necessary to consider that such challenges would be potentially regarded to cause other issues since the existing development of technology has been emerged around the world. Along with keeping in touch in opening files and sending assignment through online, the poor of the students' handwriting skills, for instance, could be an impact as online sources available like e-book have some distinct differences to facilitate in

providing information sources. In this view, between chance and challenge, the advancement of digital tool has two different potencies in updating user's activities by posting online notes, lectures, assignments and other information. The preventive action across integrating technology in a wide range of fields like education, economics and etc. should be considered to enable the society members in adopting technology for fulfilling their daily needs in a wisely appropriate way.

3. METHODOLOGY

The aim of this study is to explore the moral engagement which can underlie the interaction from live to virtual basis. To achieve this, literature review from peer reviewed journals, conferences and books was conducted to propose the framework model of strengthening moral engagement in the digital era. By using keywords on moral values and live and virtual interaction, multiple research findings can be achieved from met-synthesis with integrating, evaluating and interpreting process. As a result, phenomenological and grounded theories and ideas extracted to identify their common features, elements, and functionalities can be integrated and used to propose a framework model.



Figure 1. Procedural Stage Of Research Methodology

The strategy and application in the communication basis using the technological tool associated with professional and ethical basis will be constructed from recent reviews on technological strategy and application among the users. This paper is conducted using such procedural stage of research methodology. By searching for such information on the topic, the review of literature was carried out using the keywords. Then, to see what is going on and done about the topic, analysis of literature was also conducted by perusing any existing relevant work. Moreover, the result of literature analysis was also extracted to further analysis by using the

substantive keywords. To extract data from the findings, further analysis of substantive keyword has been conducted in synthesising the interpretation on the finding to propose model of framework of the topic. Those ideas were combined to identify their common core elements and themes into interpretations, conceptualizations, and modelling of moral engagement in the virtual interaction by adopting professional and ethical basis with strategy and application.

4. ANALYSIS AND DISCUSSION

4.1. Strengthening the Strategy Application in Virtual Interaction

Towards the creative way on strategy application adopted into the technological tool, exposing the role of strategic planning has a significant role to be implemented including the school program and society concern. It refers to assessing what is needed to build the way of skills implemented through teaching practices and methods communicated to pay attention in creating the vision with the experts. Considering the vision on strategy application is needed into the resources which are significant to underlie the model framework in addressing the dimensions of technology integration [10]. As a result, the commitment to encourage interaction in the virtual environment has a particular role to run the sustainable partnerships in terms of business activities, educational interaction etc. At this point of view, building the sustainable models with an innovative technology is committed to focus on an emphasis on measurability to support the tracking and monitoring interaction process integrated into professional and ethical balance with strategy application. As the pattern which needs to invest in integrating the technological tool into the course covered in the model integrated among the dimensions about the application strategy [20], the core model which may be applied on the organisational initiatives in providing the motivational basis refers to the personal values and goals with the level of its current existence on the causal relationship between time commitment and competence [21]. As a particular essence to the identification to focus on skill development, the skills set out in integrating technology may enhance the pedagogically sound way to signify the quality course design and teaching expertise [31;32]. In using the instructional design model as a guide to serve as a frame of reference, the professional competence can lead to construct the variety of

instructions to support the social media implementation.

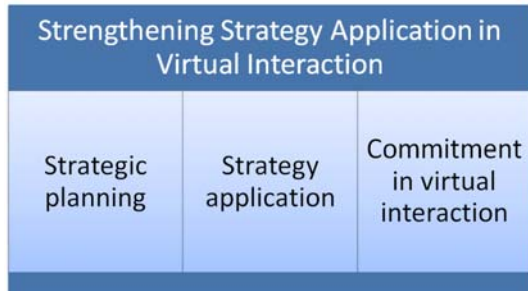


Figure 2. Model Of Strengthening The Strategy Application In Virtual Interaction

The virtual interaction can be strategically applied to enable the individual and organizational level to pass through the clarification initiated in a certain program. It refers to the essence to facilitate the relationship between structure and culture of creating the initiative to help the virtual interaction. Gaining the access to the live society is significant to connect with direct access in the extent that relates to the individual and social level [22]. With this regard, facilitating the relationship at any level to direct structure and culture in using the social media refers to the key element of the identity which is representative to the individual's personality characteristics. This becomes an opportunity to elevate the knowledge in the aspects of corporate identity to highlight the points of distinction. The interaction in the digital era can be enhanced with providing information and guidance on practices with the procedure in a way that can be determined as a major influence into the personal characteristic [10]. In this view, helping in training and acting with the potential and typical workday through the application strategy can be provided in the networking contacts inside and outside.

4.2. Engaging Moral Skills Encouragement in Virtual Interaction

Since technology with its advancement and innovation can offer the flexibilities, convenient servants and etc. in terms of human social life, its impact will affect to the moral issue, where there will also effect to the social interactions. As a result, addressing many ethical issues arising from social media, such as Facebook, Twitter, or LinkedIn should be based on understanding privacy and information attribution [23]. Additionally, technological use may have ethical, professional, and social implications related

to the information credibility and quality. These digital interactions raise ethical issues related to the moral values embedded into the kind of interactions [6;10]. Moreover, online users to extend the social networks exponentially in overcoming temporal and geographic barriers [24], the ethical perspective on technological adoption is necessary to take more careful with technological interactions than with normal physical interactions [8].

In addition, the field of ethics which is sensitive to the moral values involves illustrating how users should implement technological tools in addressing ethical framework to strengthen moral engagement in social media interaction. The moral engagement which should be inculcated on the virtual interaction includes equality, justice, property, and privacy. All these can be prioritised in the technological use in the form of user control. Such practices demonstrate an awareness of how information technology allows the human style on social practices which can enhance to form moral basis experiences, for instance friendship, care, commitment, and trust. It is necessary therefore to address the ethical norms relevant to how people engage in friendships online [20]. The connections between technology and human capabilities have been integrated to the feature and design of technology to enable users in utilising appropriately in the way that can be applied properly into the application context.

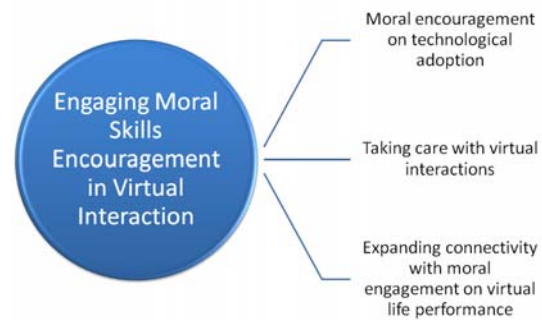


Figure 3. Model of Engaging Moral Skills Encouragement in Virtual Interaction

Moreover, the application strategy with moral engagement can be integrated into the development of technology to enable the users to operationalise their engagement on life performance. As a result, to put forward in expanding connectivity in the way that relies on the rise of computing style in the learning process for

instance, the adoption of hands-on classroom technologies developments with personalized learning software provides students with new and exciting learning opportunities [25]. To empower the collaborative approach with their workloads, making new innovations in providing real-time insights into the student's performance can pay attention to the professional adoption taken in the training program integrated to the technology which is prepared to the lesson in the classroom. Feeling adequately prepared to integrate technology into lessons is based on the technical training with the features and functions of diverse devices and applications by accessing the technology skills training. As a result of professional development in addressing to using technology, the style of programming is often positioned to prioritize the basic training which can be described to explain its implications for learning in driving the educational technology [26]. In line with exposing the creative way considered to be the professional adoption towards the technological tool, the role of strategic planning has a significant role to run engaged both the educational technology which may be implemented in the school program and society concern.

4.3. Enhancing Professional and Moral Skills Adopted Virtually in Global Connectivity

The advancements of interaction in online can be engaged into taking care with the quality of life where they are living their lives through what they post or like. With this regard, virtual communications can be enhanced with the distant conversation in attempting to substitute one for the other. It can be seen that the world is like in one hand to connect each other. An attempt to providing innovative way to helping human in a good life becomes a standard agent to complement through action-based approaches for value-based agenda within professional and ethical engagement [27;10]. The adoption of this technological tool to solve the challenges deals with complex systems-level issues such as the digital divide and globalization [28]. As a result, the interaction model in the online tool needs to take care on the aspect of virtual reality. It indicates that to determine its characteristics and components in different ways, the interactivity to describe interactions within a virtual world can be reached into immersion and presence. It can be seen thoroughly with determining the factors which can impact to both presence and immersion. For instance, the user will not feel in both physically and mentally in the virtual world meaning that he will not interact with the virtual objects regardless

of their range, speed and mapping [13]. It can be described that to determine the characteristics of interaction in a virtual world can be assessed in the virtual environment which is immersed with virtual objects.



Figure 4. Model Of Enhancing Professional And Moral Skills Adopted Virtually In Global Connectivity

In addition, it is necessary to possess the professional skills to underlie the technological adoption to create the foundation. In reaching this, engaging the character values such as trust, care, friendship and commitment with evaluating information related to the concept of wisdom are required to go further in the process with the constructional ability in creating the person to shape professional, social and epistemic practices [29;30]. The way associated between ethical and professional consideration to drive in using and utilizing technological tool in virtual interaction can be proposed with the reference model specifically in moral engagement [31;33]. At this point of view, professional and ethical basis associated with the instructional strategy and application in the technology will be demonstrated into the considerable guideline in making appropriate contribution to the society at large [34;35]. Expanding the professional and ethical basis of the emerging technology can reach positive implication for both individuals and society. In terms of sustainable engagement to learn something new in terms of experiential basis to adapt the conditional circumstance [36], they should make sure in understanding comprehensively on the learning style [37] mainly in digital age [10] in order to see how all the necessary stages are going well. As an attempt to sustain the way to learn to be the cultural identity into their behavioral stage [38], empowering the skills on technological expertise has to be involved with the ethical engagement in the way which underlies the personal and societal life aspect. With regard to the experience in the

digital era as the encounter of something new from emerging technology, it is necessary to consider the way to use in utilizing technological tool properly and wisely across virtual interaction with different cultures and at all points of the lifespan.

5. CONCLUSION

Due to changing condition involving transforming how to interact, develop, work, and play affected by digitization involving media, entertainment, and information with newer generations leading to the evolution, there has emerged such challenges on this chance. This paper does explore the moral engagement in driving the virtual interaction in the digital age. Considering the way to go further with more challenging issues in the virtual interaction like cyberbullying, uncertain information and etc., exploring moral engagement should be regarded to provide the framework of interactional basis with human communities such as trust, care, friendship, and commitment. This attempt can also underlie virtual interaction by providing an innovative way to help the human society in a good life. The moral engagement with professional and ethical basis associated with the instructional strategy and application in virtual interaction can be realised to the reference model demonstrating how the human with all the potency they behave can become a significant contribution to the society at large to enhance the abilities to improve their capacities to operate the technological tools wisely and appropriately. Expanding the professional and ethical basis of the emerging technology can reach positive implication for both individuals and society. With regard to the experience in the digital era as the encounter of something new from emerging technology, it is necessary to consider the way to use in utilizing technological tool properly and wisely across virtual interaction with different cultures and at all points of the lifespan. Moreover, empowering application and strategy associated with professional and ethical basis plays a significant role to guide users with positive implications to address potential issues in digital era. By contouring the main foundation on how to use and utilize technological tool in all comprehensive coverage on theory and applications, this chapter is expected to contribute in giving a feedback to provide insights on the emerging technological trends through a particular guideline to give the clear understanding of the importance of the impact technology on the human condition.

REFERENCES:

- [1] Anderson, T. (2008). *The theory and practice of online learning*. Canada: Athabasca University Press.
- [2] Anshari, M., Almunawar, M. N., Shahrill, M., Wicaksono, D. K., & Huda, M. (2017). Smartphones usage in the classrooms: Learning aid or interference?. *Education and Information Technologies*, 1-17.
- [3] Anshari, M., Alas, Y., Sabtu, N. I. P. H., & Hamid, M. H. S. A. (2016a). Online Learning: trends, issues and challenges in the Big Data Era. *Journal of e-Learning and Knowledge Society*, 12(1), 121-134.
- [4] Anshari, M., Alas, Y., Hardaker, G., Jaidin, J. H., Smith, M., & Ahad, A. D. (2016b). Smartphone habit and behavior in Brunei: Personalization, gender, and generation gap. *Computers in Human Behavior*, 64, 719-727.
- [5] Bales, R. F., & Parsons, T. (2014). *Family: Socialization and interaction process*. New York and London: Routledge.
- [6] Batchelor, R., Bobrowicz, A., Mackenzie, R., and Milne, A. (2012). "Challenges of ethical and legal responsibilities when technologies' uses and users change: social networking sites, decision-making capacity and dementia." *Ethics and Information Technology*, Vol. 14, No. 2, pp. 99-108.
- [7] Huda, M., Jasmi, K. A., Alas, Y., Sulaiman, E., Dacholfany, M. I., & Jamsari, E. A. (2017). Empowering Civic Responsibility: Insights From Service Learning. *Engaged Scholarship and Civic Responsibility in Higher Education*. IGI Global (in press).
- [8] Huda, M., Jasmi, K., Embong, W. H. W., Safar, J., Mohamed, A. M., Mohamed, A. K., ... & Rahman, S. K. A. (2017). Nurturing Compassionate Based Empathy: Innovative Approach in Higher Education. *Violence Prevention and Safety Promotion in Higher Education Settings*. IGI Global (in press)
- [9] Huda, M., Shahrill, M., Maselena, A., Jasmi, K. A., Mustari, I., & Basiron, B. (2017). Exploring Adaptive Teaching Competencies in Big Data Era. *International Journal of Emerging Technologies in Learning*, 12(3), 68-83.

- [10] Huda, M., Jasmi, K. A., Hehsan, A., Shahrill, M., Mustari, M. I., Basiron, B., & Gassama, S. K. (2017). Empowering Children with Adaptive Technology Skills: Careful Engagement in the Digital Information Age. *International Electronic Journal of Elementary Education*, 9(3), 693-708.
- [11] Luciana, R. P. (2010). One minute more: Adolescent addiction for virtual world. *Procedia-Social and Behavioral Sciences*, 2(2), 3706-3710
- [12] Rainey, S., & Goujon, P. (2011). Toward a normative ethics for technology development. *Journal of Information, Communication and Ethics in Society*, 9(3), 157-179.
- [13] Diamandaki, K. (2003). Virtual ethnicity and digital diasporas: Identity construction in cyberspace. *Global media journal*, 2(2), 26.
- [14] Peterson, D. K. (2002). Computer ethics: the influence of guidelines and universal moral beliefs. *Information Technology & People*, 15(4), 346-361.
- [15] Zwagerman, S. (2008). The scarlet P: Plagiarism, panopticism, and the rhetoric of academic integrity. *College Composition and Communication*, 676-710.
- [16] Huda, M., Jasmi, K. A., Mustari, M. I., Basiron, B., Mohamed, A. K., Embong, W., ... & Safar, J. (2017). Innovative E-Therapy Service in Higher Education: Mobile Application Design. *International Journal of Interactive Mobile Technologies*, 11(4), 83-94.
- [17] Greenberg, M. T., Weissberg, R. P., O'Brien, M. U., Zins, J. E., Fredericks, L., Resnik, H., & Elias, M. J. (2003). Enhancing school-based prevention and youth development through coordinated social, emotional, and academic learning. *American psychologist*, 58(6-7), 466.
- [18] Hutchins, B., & Rowe, D. (2012). *Sport beyond television: The Internet, digital media and the rise of networked media sport* (Vol. 40). New York & London: Routledge.
- [19] Reese, M., & Levy, R. (2009). Assessing the future: E-portfolio trends, uses, and options in higher education. *Research Bulletin*, 4, 1-12.
- [20] Gupta, S., & Hee-Woong, K. (2007). Developing the commitment to virtual community: The balanced effects of cognition and affect. *Information Resources Management Journal*, 20(1), 28.
- [21] Zakirillah, Noorminshah, A. I., Huda, M., Fathoni, & Heroza, R. I. (2016). Design of a Mobile based Academic Cyber Counselling Application in Higher Education. *Journal of Information Systems Research and Innovation*, 10(3), 1-9.
- [22] Chen, B., & Bryer, T. (2012). Investigating instructional strategies for using social media in formal and informal learning. *The International Review of Research in Open and Distributed Learning*, 13(1), 87-104.
- [23] Schaffers, H., Komninos, N., Pallot, M., Trousse, B., Nilsson, M., & Oliveira, A. (2011, May). Smart cities and the future internet: Towards cooperation frameworks for open innovation. In *The Future Internet Assembly* (pp. 431-446). Springer Berlin Heidelberg.
- [24] Chai, S., and Kim, M. (2012). "A socio-technical approach to knowledge contribution behavior: An empirical investigation of social networking sites users." *International Journal of Information Management*, Vol. 32, No. 2, pp. 118-126.
- [25] McLoughlin, C., & Lee, M. J. (2010). Personalised and self-regulated learning in the Web 2.0 era: International exemplars of innovative pedagogy using social software. *Australasian Journal of Educational Technology*, 26(1), 28-43.
- [26] Robins, A., Rountree, J., & Rountree, N. (2003). Learning and teaching programming: A review and discussion. *Computer science education*, 13(2), 137-172.
- [27] Greguric, I. (2014). Ethical issues of human enhancement technologies: Cyborg technology as the extension of human biology. *Journal of Information, Communication and Ethics in Society*, 12(2), 133-148.
- [28] Spence, E. H. (2011). Information, knowledge and wisdom: groundwork for the normative evaluation of digital information and its relation to the good life. *Ethics and information technology*, 13(3), 261-275.
- [29] Wakunuma, K. J., and Stahl, B. C. (2014). "Tomorrow's ethics and today's response: An investigation into the ways information systems professionals perceive and address emerging ethical issues." *Information Systems Frontiers*, 16(3), 383-397.

- [30] Westerman, D., Spence, P. R., and Van Der Heide, B. (2014). "Social media as information source: Recency of updates and credibility of information." *Journal of Computer-Mediated Communication*, 19(2), 171-183.
- [31] Huda, M., Anshari, M., Almunawar, M. N., Shahrill, M., Tan, A., Jaidin, J. H. & Masri, M. (2016). Innovative Teaching in Higher Education: The Big Data Approach. *The Turkish Online Journal of Educational Technology*, 15(Special issue), 1210-1216.
- [32] Othman, R., Shahrill, M., Mundia, L., Tan, A., & Huda, M. (2016). Investigating the relationship between the student's ability and learning preferences: Evidence from year 7 Mathematics students. *The New Educational Review*, 44(2), 125-138.
- [33] Bowden, L., Fearon, C., McLaughlin, H., & Jackson, S. (2015). Aligning computing ethics for strategy making in higher education (HE) A contrarian view—who knows?. *The International Journal of Information and Learning Technology*, 32(1), 2-16.
- [34] Reis, H. T., Maniaci, M. R., Caprariello, P. A., Eastwick, P. W., & Finkel, E. J. (2011). Familiarity does indeed promote attraction in live interaction. *Journal of personality and social psychology*, 101(3), 557.
- [35] Webster, F. (2014). *Theories of the information society*. New York and London: Routledge.
- [36] Huda, M., Jasmi, K. A., Basiran, B., Mustari, M. I. B., & Sabani, A. N. (2017). Traditional Wisdom on Sustainable Learning: An Insightful View From Al-Zarnuji's Ta 'lim al-Muta 'allim. *SAGE Open*, 7(1), 1-8.
- [37] Huda, M., Yusuf, J. B., Jasmi, K. A., & Nasir, G. A. (2016). Understanding Comprehensive Learning Requirements in the Light of al-Zarnūjī's Ta'lim al-Muta'allim. *Sage Open*, 6(4), 1-14.
- [38] Huda, M., Sabani, N., Shahrill, M., Jasmi, K. A., Basiron, B., & Mustari, M. I. (2017). Empowering Learning Culture as Student Identity Construction in Higher Education. In *Student Culture and Identity in Higher Education* (pp. 160-179). IGI Global.