Effective Leadership in Virtual Learning Environments

H. Alotebi, O. Alharbi, and A. Masmali

Abstract—**Effective leadership in virtual learning environments (VLEs) is considered to enhance students' learning experiences by overcoming barriers associated with web based learning. This paper presents a review of the literature concerned with the impact of different leadership models on learning processes in VLEs. The aims of the review were to distinguish which leadership models were effective in VLEs, and identify the key factors that impede learning in VLEs. The current review highlights that transactional leadership, which utilizes extrinsic rewards, may be beneficial in terms of achieving goals and increasing productivity in the short-term, but is deemed less effective on long-term change. Whereas transformational leadership, which focuses on intrinsic motivation and role modelling, is thought to be superior in terms of increasing performance, innovation, creativity, group cohesiveness, and learner satisfaction. Key barriers associated with VLEs are concerned with a lack of social interaction and collaboration that may increase the risk of learner isolation and detachment. Consequently, leaders face challenges in communication, trust building, development of interpersonal and technical skills, and group cohesion. Research indicates that these barriers may be minimized through the use of effective transformational leadership models. Further research is required in order to improve understanding of the impact of leadership on learner performance in VLEs.**

Index Terms—**Leadership, transactional, transformational, virtual learning environment.**

I. INTRODUCTION

Education has been influenced by the advancement of technology. Many educational institutions have been offering online and virtual courses and programs. The past decade has experienced a significant expansion of virtual learning [1]. This is a slightly new trend that has taken place not only in higher education but also in secondary education. Therefore, these changes in education have brought new and challenging issues that entail a clear understanding of leadership in a virtual learning environment (VLE) which is a web-based system designed to deliver educational content and enhance students learning. Ref. [2] state that leadership can help overcome obstacles that learners often encounter in virtual learning environments, such as low presence and lack of instant feedback, by promoting participation in learning groups and developing positive attitudes and behaviors as well as providing effective methods of using technology. Unlike face-to-face leaders, virtual leaders need to present

their leadership behavior more profoundly to prevent the possible risk of impersonal virtual instructor-student interaction by encouraging a more personal connection [3]. The impact of leadership models, such as transformational and transactional models on the learning process in virtual learning environments are analyzed and evaluated throughout this literature review which aims to answer the following questions: What are the leadership models that are effective in virtual learning environments? What are the barriers and obstacles that face a virtual classroom that the virtual leaders must overcome?

II. E-LEADERSHIP IN VIRTUAL LEARNING ENVIRONMENTS

Virtual learning environment (VLE) is defended as a technology-based environment that allows interactions among teachers and learners and provides access to learning experiences and a wide range of resources [4]. VLE can be differentiated from conventional learning environments in which various technological tools are employed to promote and support classroom activities. There are two different types of VLEs: synchronous and asynchronous systems. In synchronous virtual learning, learners meet with others in the real time and teachers lead live classes. Learners can use various tools such as instant messaging or video conferencing to effectively interact and communicate with other learners or teachers. In asynchronous environments, learners learn at their own paces and complete the tasks independently by utilizing a variety of tools such as discussion boards and web blogs.

Leadership in virtual environments, or what some authors call e-leadership [5] refers to an individual's capacity to influence others' behavior in a technology-mediated or virtual environment [6]. One of the first uses of the term "e-leadership" was by [7] who defined e-leadership as a social influence process mediated by advanced information technology (AIT) to provide a change in attitude, feelings, thinking, behavior, and performance with individuals, groups, and organizations. Even though e-leadership is mainly used in the business arena, several studies used e-leadership to refer to the use of technology to support leadership in educational settings [8]. In the context of education, some educators use e leaders to refer to school principals, but others expand the domain of the e-leadership to contain the action of teachers and students. In this sense, e-leadership is defined as the effective incorporation of technological tools into learning environments regardless of any formal leadership position [9].

Several recent books mentioned that many of the principles of e-leadership still have merit of leadership ideas that were developed before the Internet and digital era [10]. However, [5] argued that there are significant differences

between leadership in conventional organizations and virtual environments. The scale of e-leadership was expanded to not simply refer to leadership in a virtual environment but also the idea that e-leadership can uphold advanced models of leadership in which students can effectively improve their skills and enhance their social interaction [11]. The implication of leadership in a virtual environment is still at a relatively early elaboration phase, and e-leadership will become more imperative in the near future. Therefore, more research needs be done to explore the effectiveness of leadership in virtual learning settings [5], [11].

III. MODELS OF LEADERSHIP IN VIRTUAL ENVIRONMENTS

Transformational leadership is a part of the new leadership paradigm, which places more emphasis on charismatic and effective components in leadership. Downton first proposed the idea of transformational leadership in 1973, but it was Burns who elaborated and detailed the concept of transformational leadership in 1978. Burns made a distinction between two types of leadership: transformational and transactional leadership [12].

Transactional leadership refers to the exchange relationship between leaders and followers, in which a leader offers tangible rewards to his or her followers in exchange for their efforts. The reciprocity aspect of transactional leadership is usually utilized at different levels in nearly all institutions [12]. For instance, a teacher who gives his or her students tangible rewards such as stickers uses transactional leadership. In this leadership model, the teacher' priority is to achieve short-term goals. Therefore, transactional leaders do not concentrate on the development of the individuals and the organization in the long run. Ref. [13] indicated that transactional leadership could be effective at reaching the followers' basic needs, which may improve organizational productivity. However, this leadership model does not promote change in the organization; rather, it maintains the current situation.

The other type of leadership is transformational leadership, which is a process or approach that alters and transforms individuals. Burns states that "transformational leadership occurs when one or more persons engage with others in such a way that leaders and followers raise one another to a higher level of motivation, performance, and morality" (p. 20). Therefore, transformational leadership emphasizes the importance of psychological aspects of human communication including emotions, values, ethics and long-term goals. Throughout transformational leadership, followers or students are treated as human being by evaluating their motivation and nourishing their needs [12]. Transformational leadership also focuses on intrinsic motivation and followers' development, which gives it a popular and central position in leadership. Thus, transformational leadership influences and motivates students intrinsically. It can encourage students to establish higher-level purposes and control their instant interests [2].

In addition, [14] identified four basic components that underlie transformational leadership, and in order to conduct effective changes, transformational leaders must exhibit these four components: inspirational motivation is the first component, which refer to the capacity of leaders to motivate and inspire followers to be committed to the organization and a part of a shared vision as well as performing on a high level. The second component is intellectual stimulation, where leaders encourage new ideas from their followers and challenge followers to be more innovative and creative. Idealized influence, the third component, is the leader's capacity to act as a positive role model for followers and demonstrate high ethical standards. These leaders put their followers' needs before their own needs. The last component is individualized consideration, in which leaders provide a supportive environment and pay close attention and respond to their followers' needs.

Transformational leaders (instructors) in academic environments are not confined to simply transitioning knowledge, but rather play vital roles in skill development. They are proficient role models who are anticipated to catalyze learners' curiosity and meet learners' needs and inclinations. Ref. [14] stated that such behaviors are considered to be a type of transformational leadership. The embracing of transformational leadership by virtual learners may influence students' satisfaction in a variety of ways, such as increasing the opportunity for students to freely ask questions, enhancing the chance in which virtual leasers inspire students to accomplish higher expectations, and fulfilling students' concerns, which makes students feel more relieved [3].

IV. RESEARCH

Many studies have focused on leadership models in business virtual settings [8], [9]. For instance, [15] investigated the effect of transformational and transactional leadership in face-to-face, physical, and virtual organizational settings in a laboratory experiment. Leadership models (transformational or transactional) and group setting (face-to-face or virtual environment) were manipulated experimentally. The findings indicated that transformational leadership model increases members' performance, leadership satisfaction, and group cohesiveness better than transactional leadership model. The findings also revealed that trust appeared to mediate the performance effects of leadership model. In addition, the findings showed that the face-to-face interaction increased group members' satisfaction.

Although e-leadership research in virtual learning environments is limited, some studies indicated that the concepts and principles of transformational and transactional leadership, which is based on leadership literature, can be applied and implemented in the virtual learning environments, which may contribute in bridging the literature gap and developing our understanding pertaining teacher leadership and student learning. Ref. [16] investigated the correlation between student perceptions of teacher leadership in VLEs including transformational and transactional and student cognitive learning, emotional learning, teacher trustworthiness, and interaction satisfaction. Convenient sampling was used to select participants who were graduate students enrolled in an online leadership program. Multiple linear regression was used to analyze the data of 112 students.

The results indicated that teacher transformational leadership is a more significant predictor of cognitive learning, emotional learning, teacher trustworthiness, and interaction satisfaction than teacher transactional leadership.

Ref. [17] conducted an exploratory study in order to examine the perception of students and teachers from a Southern California community college towards leadership models in virtual environment. The sample included 107 business administration students and 13 virtual teachers. The results indicated that students anticipated their virtual teachers to be transformational or transactional leaders instead of passive leaders. The study also showed that virtual teachers recognized what is expected from them, but this recognition was not enough to reach the level of student expectations from transformational and transactional teachers. Furthermore, the results showed that gender and the number of classes students took had no significant differences in leadership expectations. The study also found that transformational leadership was associated with transactional leadership, extra effort, effectiveness, and student satisfaction. The study recommended that virtual teachers should learn how to effectively utilize and implement transformational and transactional leadership in virtual classrooms.

Students in virtual learning environments have different impressions towards transformational and transactional leadership models. Ref. [18] compared the influences of transactional and transformational leadership in asynchronous and synchronous online teamwork. In this study, groups of four students learned and communicated through online chats and forums while performing problem-solving projects. In each group, there was a leader who directed the group utilizing transactional or transformational leadership. Students' satisfaction was evaluated in different aspects including interaction, participation, and communication. The results indicated that students were more satisfied with transformational leadership, which utilized cognitive and metacognitive activities than transactional leadership, which mostly relied upon participative activities.

Ref. [13] investigated the effect of transactional and transformational leadership as well as conflict management approach on student performance in an online business-planning course. Five tactics including avoidance, accommodation, competition, collaboration and compromise were performed in the conflict management approach. The study participants, 318 undergraduate students, completed an online survey that was crafted to collect data. The results found that transactional and transformational leadership as well as conflict management had a significant effect on student performance. The results also suggested that transformational leadership was more effective than transactional leadership in addressing conflict managements.

Students' satisfaction with virtual learning environments might be tied more strongly to their perception of the leader than to the tangible rewards the leader can provide. [3] examined the influence of transformational, transactional, and laissez-faire leadership models of university teachers in virtual learning environments on students' satisfaction and learning performance. In order to achieve the research goal, completed online questionnaires were obtained from 1,270 students who enrolled in large academic courses led by teachers in virtual learning environments. The results found that students were more satisfied when they ascribed more a transformational leadership model and less a passive leadership model to the teacher.

Similarly, [2] investigated the influence of transformational and transactional leadership on cognitive effort and outcomes during collaborative learning within a VLE. The finding showed that transformational leadership improved cognitive effort, but transactional leadership reduced it. As a result, cognitive effort enhanced the quality of student decisions; however, it also increased the discussion time and reduced its satisfaction. The findings also found that transformational and transactional leadership had direct and positive influence on student discussion satisfaction.

Ref. [19] investigated transformational leadership in two different settings: virtual and physical groups. Virtual groups used computer- based communication tools while physical groups used just face-to-face communication. Thirty-nine leaders participated. The researchers employed repeated measures to analyze the data. The results indicated similar mean levels of transformational leadership in both groups. However, leader rank differed among the groups. The results showed that leaders who increased their transformational leadership model in the virtual groups were the most effective leaders. In addition, the results of group level analyses found that the impact of transformational leadership on group performance was stronger in virtual groups than in face-to-face groups. The groups' members also were more satisfied with transformational leaders in the virtual settings than in the physical settings. Finally, the researchers stated that transformational leadership had a stronger impact in virtual groups and that leaders who promoted their transformation leadership models in virtual groups accomplished better levels of group performance.

Several studies focused on the barriers and obstacles that confront leaders in a virtual environment. Research indicated that leaders usually face challenges on trust, communication difficulties, lack of social interaction and group cohesion [20]. The lack of group collaboration among online students might be due to the requirement of considerable amount of time and dependency on other students which is in direct conflict with the perception of some virtual students who might perceive the virtual environment as independent learning environment [21].

Ref. [22] also stated that there are five main barriers to leadership in a virtual setting: lack of physical interaction and collaboration, building technical and interpersonal skills, building trust, feelings of isolation and detainment, and greater concern with assessment and recognition of virtual performance. Another challenge is related to technology issues, such as selecting the appropriate communicational tools to effectively communicate with others.

Ref. [23] investigated the influence and challenges of leadership in a virtual environment. The results showed that leadership in virtual environment is a complicated challenge. Therefore, leaders and followers need to work together to identify barriers and engage in all level of leadership in order

to overcome the challenge of leadership in a virtual environment. The findings indicated working collectively to create an environment that enables all individuals to participate in leadership is one of the greatest challenges in leadership in a virtual environment.

Researchers also have identified some major challenges that leaders encounter in virtual environment. These challenges are trust establishment, communication barriers, cultural differences, and complicated process of data exchange [2]. Ref. [24] also mentioned that e-leaders encounter two principal challenges: isolation and confusion. Terence proposed ten functional guidelines for exceeding e-leadership's barriers and obstacles including thinking proactively, applying cultural intelligence, staying person-centric, establishing predictability, and driving for precise communications.

V. CONCLUSION AND IMPLICATIONS FOR PRACTICES

The majority of studies of leadership models such as transformational and transactional models in virtual environments are conducted in business and organizational settings. A few studies examined e-leadership models in educational environments, and all of these studies targeted higher education. Although virtual learning in secondary education has been implemented for a considerable amount of time [25], no study examining the influence of leadership models in virtual secondary schools was found. This may be because many virtual secondary schools are not supported by government funds, which negatively impacts conducting research in virtual schools. Furthermore, most of the studies in educational context conducted in business courses, which might limit the generalization of the findings to other disciplines. Also, most of the studies were conducted in developed countries, which indicate that students from different cultural regions and backgrounds might reply to leader and teacher transformational and transactional behaviors in different manners. [26] stated that few studies have been conducted to investigate how transformational leadership can be replicated across cultural backgrounds.

The review of the leadership literature revealed that the transformational leadership model is more effective in virtual learning environments than the transactional leadership model, and it is more effective in virtual environments than in physical environments. This review also provides evidence that the transformational leadership model can effectively enhance virtual students' learning and group performance, and it is associated with students' satisfaction and affective learning.

There are important implications for the application of the transformational leadership model in virtual classrooms. Transformational leadership components: inspirational motivation, intellectual stimulation, idealized influence, and individualized consideration can be applied to virtual learning environments and positively influence students' learning experiences. Teachers can implement these components in nearly every aspect of the virtual learning experience by using appropriate and effective tools such as discussion boards and blogs [16].

Teachers can implement the intellectual stimulation component in the virtual classrooms to elicit and encourage students higher order thinking and problem solving skills. Furthermore, teachers can use effective technological tools such as Facebook and Twitter to overcome the communication barriers and demonstrate individualized consideration in which each student can learn in his or her own pace. Teachers also can incorporate idealized influence and inspirational motivation transformational components through motivational language to motivate students to reach their full potential. In conclusion, these strategies provide virtual teachers and leaders with great opportunities to increase students learning satisfaction and enhance their learning performance.

REFERENCES

[1] P. C. Sun *et al*., "What drives a successful e-learning? An empirical investigation of the critical factors influencing learner satisfaction," *Computers & Education*, vol. 50, no. 4, pp. 1183-1202, 2008.

[2] S. Kahai *et al*., "Effects of transformational and transactional leadership on cognitive effort and outcomes during collaborative learning within a virtual world," *British Journal of Educational Technology*, vol. 44, no. 6, pp. 969-985, 2013.

[3] R. Bogler *et al*., "Transformational and passive leadership an initial investigation of university instructors as leaders in a virtual learning Environment," *Educational Management Administration & Leadership*, vol. 41, no. 3, pp. 372-392, 2013.

[4] G. Piccoli *et al*., "Web-based virtual learning environments: A research framework and a preliminary assessment of effectiveness in basic IT skills training," *MIS quarterly*, pp. 401-426, 2001.

[5] D. Gurr, "ICT, leadership in education and e-leadership," *Discourse*, vol. 25, no. 1, pp. 113-124, 2004.

[6] P. Chamakiotis *et al*., "E-leadership styles for global virtual teams," *Leadership in the Digital Enterprise: Issues and Challenges*, Hershey PA: IGI Global, 2011.

[7] B. J. Avolio *et al*., "E-leadership: Implications for theory, research, and practice," *The Leadership Quarterly*, vol. 11, no. 4, 2000.

[8] I. Blau and O. Preser, "E-leadership of school principals: Increasing school effectiveness by a school data management system," *British Journal of Educational Technology*, vol. 44, no. 6, pp. 100-1011, 2013.

[9] J. P. Preston *et al*., *Twitter and E-Leadership in a Postsecondary Setting*, 2014.

[10] M. Raffoni, "E-leadership, take two," *Harvard Management Update*, vol. 6, no. 6, pp. 4-6, 2001.

[11] S. Freitas and H. Routledge, "Designing leadership and soft skills in educational games: The e-leadership and soft skills educational games design model (ELESS)," *British Journal of Educational Technology*, vol. 44, no. 6, pp. 951-968, 2013.

[12] P. G. Northouse, *Leadership: Theory and Practice*, Thousand Oaks: SAGE, 2013.

[13] W. L. Chang, and C. Y. Lee, "Virtual team e-leadership: The effects of leadership style and conflict management mode on the online learning performance of students in a business: planning course," *British Journal of Educational Technology*, vol. 44, no. 6, pp. 986-999, 2013.

[14] B. M. Bass, "Leadership and performance beyond expectations," *Collier Macmillan*, 1985.

[15] C. L. Hoyt and J. Blascovich, "Transformational and transactional leadership in virtual and physical environments," *Small Group Research*, vol. 34, no. 6, pp. 678-715, 2003.

[16] J. L. Harrison, "Instructor transformational leadership and student outcomes," *Emerging leadership journeys*, vol. 4, no. 1, pp. 82-136, 2011.

[17] R. K. Livingston, "An investigation of transformational leadership in a virtual learning environment," Doctoral dissertation, Capella University, 2010.

[18] S. Ruggieri, S. Boca, and M. Garro, "Leadership styles in synchronous and asynchronous virtual learning environments," *Turkish Online Journal of Educational Technology*, vol. 12, no. 4, p. 96, 2013.

[19] R. K. Purvanova and J. E. Bono, "Transformational leadership in context: Face-to-face and virtual teams," *The Leadership Quarterly*, vol. 20, no. 3, pp. 343-357, 2009.

[20] B. Abbasnejad and H. I. Moud, "Leadership functions and challenges in virtual teams-a review paper," *International Proceedings of Economics Development & Research*, vol. 45, 2012.

[21] S. L. Piezon and R. L. Donaldson, "Online groups and social loafing: Understanding student-group interactions," *Online Journal of Distance Learning Administration*, vol. 8, no. 4, 2005.

[22] W. F. Cascio and S. Shurygallo, "E-leadership and virtual teams," *Organizational Dynamics*, vol. 31, no. 4, 2003.

[23] M. L. Pulley and V. I. Sessa, "E-leadership: tackling complex challenges," *Industrial and Commercial Training*, vol. 33, no. 6, pp. 225-230, 2001.

[24] T. Brake, "Leading global virtual teams," *Industrial and Commercial Training*, vol. 38, no. 3, pp. 116-121, 2006.

[25] T. A. Salsberry, "K-12 virtual schools, accreditation, and leadership: What are the issues?" *Educational Considerations*, vol. 37, no. 2, pp. 14-17, 2010.

[26] J. S. Pounder, "Transformational leadership: Practicing what we teach in the management classroom," *Journal of Education for Business*, vol. 84, no. 1, pp. 2-6, 2008.

Hatem Alotebi is a doctoral student in the urban education program at Cleveland State University. He is specialized in learning and development. His research work is focused on self- regulated learning and the use of technology in education including online and blended learning and learning analytics.

Omran Alharbi is a doctoral student in the educational technology program at University of Glasgow. His research work is focused on the effective use of e-learning in secondary and higher education.

Abdullah Masmali is a doctoral student in educational technology program at Kansas State University. His research work is focused on technology adaptation, blended learning, and mobile learning.