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Contextual challenges in the process of TPC integration in Eritrean Higher Education

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ABSRACT

The insightful transformation of teaching content in outcome-based quality classroom activities with an upsurge of technologies in higher education is at the center. Despite a good amount of investment in ICT in the new teaching-learning paradigm in Eritrean Higher Education, numerous challenges still pose hinderance in the process of integratingtechnology-aided pedagogy and content (TPC) into the education system. The objective of the study was to investigate the contextual challenges in the process of TPC integration in higher education in Eritrea that would help find ways to overcome the same and bring efficientapplication of TPC for facilitating the teaching-learning processes in and out of the classroom. As reported through this study, majority of the respondents were in need of training on technology use (21 out of 30). Also, a good number of respondents (17) claimed for the need of adequate classroom equipment and necessary arrangements. Besides, other factors stand as prevailing challenges to TPC integration such as electricity power interruption, internet connectivity bottlenecks, lack of adequate awareness on the newly introduced technologies and services in the campus.

Key words: TPC integration, Technology training, Technology-equipped classroom, Contextual challenges, Future vision

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INTRODUCTION

In this techno savvy world, technology-enabled education opens the gate to outcome-based quality education system where we need technology aided pedagogy and content (TPC) in teaching-learning processesin a fast-transformative mode of education. Expecting the efficiency and effectiveness of TPC integration in Eritrean higher education, it is the attempt to introduce the same in order to bridge the existing technology gap in teaching-learning environment. Global investment in ICT infrastructure, equipment with prompt services, repair, maintenance and professional training to improve quality education in many developing countries is huge as a striking point. Despite all these investments, some studies have reported that its return outcome is little, i.e. in ICT adoption and use in teaching and learning (Gulbahar, 2007; Leidner & Jar Venpaa, 1995). On the track of TPC integration in both schools and colleges, there are many hindering factors such as lack of technology-based curriculum, lack of training opportunities, technical difficulties, limited knowledge, lack of confidence and competence to make full use of technology, resistance to change due to negative attitude and beliefs, financial constraints, lack of appropriate support of administration and other stakeholders (Singh & Chan, 2014; Moganashwari & Parilah, 2013; Bingimlas, 2009; Snoeyink & Ertmer, 2002). These challenges are addressed and overcome more or less by determination and concerns of the institutions to reach their goals.It considers how new developments and technologies present new opportunities in promoting knowledge, attitude and practice in a new learning paradigm (Ghosh & Tewelde, 2017) for its return value to the investment by overcoming the challengesthat stand on its way.

The Eritrea Institute of Technology (EIT) community being in the same line at the beginning of ICT introduction in teaching-learning in higher education, it is our sole attempt as per the main study objective to investigate the contextual challenges in the process of TPC integration. These need to be addressed with due attention for its proper use and bring the effectiveness in new teaching-learning approach being motivated by many studies (Andoh, 2012; Peralta & Costa, 2007; Rogers, 2003; Earle, 2002). TPC offers teachers new instructional opportunities that increase their efficiency and expand capabilities to stimulate and engage students in active learning in their livelyteaching process (Tewelde & Ghosh, 2018). TPC infusion in Eritrean higher education has a vision to bridge the gap between theory and practice focusing on learner-centred interactive pedagogy aligned with the national policy for ICT in education in Eritrea (MOE, 2005). It promotes meaningful and outcome-based learning skills fit to practical problem solving (Ghosh & Tewelde, 2017; Project Tomorrow, 2010) as well as professional productivity and development in the direction of educational reform (Yelland, 2001). Therefore, Eritrean Higher Education teaching professionals need to realize the importance of TPC new approach in today's teaching-learning environment, becoming optimistic and techno-ready to improve the quality of teaching-learning outcomes by overcoming the prevailing challenges through different ways. It is hoped that this study may help in redesigning TPC-based new curricula by policy makers and planners for higher education, making aware of ICT center, administrators and other stakeholders for financial support, provision of technology equipment, maintenance, training and others.

Therefore, the study may pave a way to providing TPC culture in Eritrean schools and higher education environment for easily grasping contents, practice, mastery of skills and application in real life. It needs to involve coordinated approach to boost the whole education system including technology-integrated curriculum, transformative pedagogy, community awareness to educational technologies and their effective use, training program and workshop, technology-equipped classroom and necessary provision and arrangements to reach the goal of quality teaching-learning outcomes by overcoming prevailing challenges.

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MATERIALS AND METHODS

A participatory qualitative research design was used for the study. A total of 30 instructors were included as study participants from the three colleges, i.e. College of Education, College of Science and College of Engineering & Technology in the Eritrea Institute of Technology, Eritrea (North East Africa). The above participants were selected by using blind-fold method of random sampling technique. A focus group interview technique incorporating semi-structured formal questions as per the study objectives was developed by the researchers and tested through pilot study. Then final shaped focus group interview technique was administeredto dig-out the in-depth information. Central focus was oncontextual challenges in TPC integration by the teaching community. Participants were informed about the study purpose and importance. Also, their participation consent was received as per the research ethics. Focus group interviews were undertaken in six sessions, taking five participants in each group, being mixed from the three colleges. The composition of the focus group participants was meant to better represent the whole institute than their respective college. Members of each group discussed the interview questions and came to common group consensus. In-depth accurate responses to the specific information under the study were gathered and recorded by the two interviewers (the researchers) session-wise in different times and dates. Interview was in a conversational way between interviewers and interviewees through face-to-face contact in an ease and comfortable environment.The participants' responses wereanalysed and presented in a descriptive form to reveal the actual meaning and conclusive results. Discussion and interpretationswere made using logic, intelligence and insights by considering the local context as well as related literature review.

RESULTS AND DISCUSSION

The study has found that the teaching community is well aware of the technology resources available around and they are ready to deploy them in their teaching-learning activities. However, many challenges have been mentioned by the group interview respondents in the process of TPC integration that these challenges need proper attention in due course. Though the whole education community is well-aware about the available technologies for teaching-learning support, many respondents have indicated the most striking area in the same line that the instructors need appropriate training on how to use the available technologies around them in order to effectively integrate TPC in their teaching-learning processes (21 out of 30). This shows that teachers are not conversant with the technology and needed skills for integrating them in teaching-learning with contents and appropriate pedagogy. This creates deterrence to integrate them to relevant courses in the curriculum.

In some studies, lack of technology-based curriculum, lack of training opportunities, technical difficulties, limited knowledge to make full use of technology, resistance to change because of negative attitude and beliefs are hindering factors at institutional, system and personal levels on the way of technology integration in education (Singh & Chan, 2014; Moganashwari & Parilah, 2013; Snoeyink & Ertmer, 2002). AL-Oteawi (2002: 253, cited in Bordbar, 2010) has also suggested to allow teachers to make 'informed decision' who lack technology knowledge and skills, negative or neutral attitude towards integration of ICT into teaching-learning processes. Some other studies have stated the importance of training on how to use the available technologies in education by developing awareness, new knowledge, insights, skills and expertise (Franklin, 2007; Christensen & Knezek, 2006) for expected outcomes. In the relevant line, Farrel (1999) has pointed that training and workshops for technology integration are needed not only to improve the skills of the instructors but also as a means of getting both teachers and students involved in the process of teaching and learning for regular updating. Therefore, technology-enabled education system and environment need to be lively and engaging each instructor to be ready and embrace the promising changes in teaching profession by integrating TPC with additional endeavours, courage and fore-looking vision.

The study has also found that there is a high demand by the teaching community for preparing the classrooms with appropriate technology equipment and services reported by 17 respondents. This demand includes facilities such as a technology-equipped classroom and special arrangements to boost the teaching community's interest to integrate technology and change the teaching method

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thereof. The institution also needs further enhancement of the teaching-learning environment rich in technologies by making the needed resources easily accessible to the users, mainly the instructors and students in a conducive environment. Kwok & Yong (2017) have also stated that the predicted intention to use ICT tools in the future depends on perceived ease of use and their usefulness in a problem-based teaching-learning environment.

Another big challenge that is beyond the institutional domain also exists, where electricity power interruption poses its own challenge reported by 13 respondents. Power interruption prevents the continuous flow of work and creates inconvenience to use digital materials for updating and enriching the teaching-learning content. It is yet to draw enough attention and action at national level. Some respondents envisioned the need for TPC-based new curriculum in higher education to be strictly implemented and subjected for assessment. The studies by Gulbahar, (2007) and Norton, et al., (2000)have supported thattransforming educational vision into reality is focused on curriculum, learning environment, teaching strategies and assessment. ICT related knowledge, skills and processes across the curriculum are the powerful tool to transfer the outcome-oriented instruction into learner focused and interactive learning (Singh & Chan, 2014; MOE, 2005).

The study has also found that there is a need for further awareness of the newly introduced technologies and services including extension of the ICT infrastructure of the campus,optimized internet connectivityand more intranet facilities like video streaming and maintenance of both hardware and services.Adequate internet connectivity helps to access many web-based journals and references with or without subscription requirements as per the need of teacher and learner to enrich the updated materials. As an institution of higher education, the need for promoting research and supplementing the teaching-learning processes, internet connectivity for reliable source is well justified by the respondents as a very important facility that the community would like to have in the near future for smooth-running quality work. Also, the expectation of the need of TPC-based new curriculum can enforce the community consciously or unconsciously to integrate TPC in teaching-learning processes as a common practice for good educational outcomes followed by assessment and remedial measures. These above contextual challenges either at personal level or institutional level or system level need proper attention in due course with coordinated approach to support and continuous use of technology-equipped teaching-learning environment in higher education in Eritrea.

RECOMMENDATION

The introduction of TPC in teaching-learning requires working knowledge of technologies deployed so that the instructor can flexibly integrate content with technology and come up with dynamically adapting pedagogy. This needs to organize technology-embedded training and workshop in the higher education institutions with the help of administration and ICT Center while introducing new technologies that can be used effectively in education. Moreover, it is recommended to promote collaborative research among schools, higher education institutions and other stakeholders to know details about the contextual challenges in the process of TPC integration. Therefore, higher education institutions need to take the initiative to develop techno-culture campus through their leading role and practice in the education community, i.e., through teachers, learners, administrators, counsellors, technical personnel and others.

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REFERENCES

- Andoh, C.B. (2012). Factors influencing teachers' adoption and integration of Information and Communication Technology into teaching: a review of the literature. International Journal of Education and development using Information and Communication Technology, 8(1), 136-155.Retrieved August 2018 from http://ijedict.dec.uwi.edu/Viewarticle.php?id=1362
- Bingimlas, K.A. (2009). Barriers to the successful integration of ICT in teaching and learning environments: A review of the literature. Eurasia Journal of Mathematics, Science and Technology Education, 5(3), 235 – 245.
- Bordbar, F. (2010). English Teachers' attitudes toward computer-assisted language learning. International Journal of language studies, 4, 179206. Retrieved August 2018 from https://www.scirp.org/(S(351jmbntvnsjt1aadkposzje))/reference/ReferencesPapers.aspx?ReferenceID=1051750
- Christensen, R. & Knezek, G. (2006). Pathway for preparing tomorrow's teacher in infuse technology. Computers in the Schools, 23(3 & 4), 1 – 21.
- Earle, R.S. (2002). The integration of instructional technology into public education: Promises and challenges. *ET Magazine*, 42 (1), 5 – 13. Retrieved in Oct 2018 at hettp://BooksToRead.com/etp
- Farrel, G. M. (ed). (1999). The development of virtual education: A global perspective, A study of current trends in the virtual delivery of education. The Commonwealth of Learning,Vancouver.Retrieved from http://www.col.org
- Franklin, C. (2007). Factors that influence elementary teachers' use of computers. Journal of technology and teacher education, 15(2), 267 – 293.Waynesville, NC USA. Retrieved October, 2018 from https://www.learntechlib.org/primary/p/19833/
- Ghosh, S. & Tewelde, S. (2017). Application of Instructional Technology in Promoting KAP in a new learning paradigm in Eritrean Higher Education. The Signage, 5(2), 1-4.Retrieved Dec 2018 from http://www.thesignage.co.in
- Gulbahar, Y. (2007). Technology Planning: a roadmap to successful technology integration in schools. Computers and Education, 49(4), 943 – 956.

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- Kwok, D. & Yang, S. (2017). Evaluating the intention to use ICT collaborative tools in a social constructivist environment. International Journal of Educational Technology in Higher Education, 14(32): 1 – 14.
- Leidner, D.E.& Jar Venpaa, S.L. (1995). The use of Information Technology to enhance management school education a theoretical view. MIS quarterly, 265 – 291.
- Ministry of Education (2005). National Policy for ICT in Education in Eritrea
- Moganashwari, K. and Parilah, M.S. (2013). Knowledge, attitude and use of ICT among ESL teachers. Proceeding of the global summit on Education, 11 – 12 March 2013, Kualalampur. Organized by worldconferences.net.Retrieved August 2018 from https://www.semanticscholar.org/paper/KNOWLEDGE-%2C-ATTITUDE-AND-USE-OF-ICT-AMONG-ESL-Kandasamy/7ed5478dc2fb9457a7402da5023bbdda4abc3b30
- Norton, S., McRobbie, C. & Cooper, T. (2000). Exploring secondary mathematics teachers' reasons for not using computers in their teaching: Five case studies. Journal of research on Computing in Education, 33 (1), 87 – 109.
- Peralta, H. and Costa, F.A. (2007). Teacher's competence and confidence regarding the use of ICT. Educational Science Journal. 3, 75 – 84. Retrieved October 2018 from https://www.researchgate.net/publication/26473802_Teachers%27s_competence_and_confidence_regarding_the_use_of_ICT
- Project Tomorrow. (2010). Unleashing the Future: Educators "Speak Up" About the Use of Emerging Technologies for Learning: National Findings. Retrieved August 2018 fromhttps://tomorrow.org/speakup/pdfs/SU09UnleashingTheFuture.pdf
- Rogers, E.M. (2003). Diffusion of innovations (3rd ed).Collier Macmillan Publishers, New York: Free Press.
- Singh, T.K.R. and Chan, S. (2014). Teacher readiness on ICT integration in teaching-learning: A Malaysian case study. International Journal of Asian Social Science, 4(7), 874-885.Retrieved Sep 2018 from http://www.aessweb.com/journals/5007
- Snoeyink, R. and Ertmer, P. (2002). Thrust into technology: How veteran teachers respond. Journal of Educational Technology Systems, 30(1), 85 – 111.
- Tewelde, S. & Ghosh, S. (2018). Technology Aided Pedagogy and Content in Higher Education. International Journal of Research in Engineering and Technology, 6(5), 1-6.Retrieved December 2018 from http://www.impactjournals.us
- Tomei, L.A. (2005). Taxonomy for the technology domain. USA: Information Science Publishing.
- Yelland, N.(2001). Teaching and Learning with Information and Communication Technology for numeracy in the early childhood and primary years of schooling. Australia: Department of Education, Training and Youth Affairs. Retrieved August 2018 from http://www.scirp.org/(S(czeh2tfqyw2orz553k1w0r45))/reference/ReferencesPapers.aspx?ReferenceID=751525