

Research Article

The relationship between the use of information and communication technology with creativity and communication skills in physical education students of Tehran University

Maryam Falah Kazemi^{1*}, Negar Gholipour² and Vahid Bakhshalipour³

¹M.Sc Sport Management, Alzahra University, Iran

²PhD Student in Sport Management, Kermanshah University, Iran

³Sama technical and vocational training college,

Islamic Azad university, Lahijan Branch, Siyahkal, Iran

Corresponding Author Email: Bh-falah@yahoo.com

ABSTRACT

The purpose of this study was to examine the relationship between the use of information and communication technology with creativity and communication skills in physical education students of Tehran University. The statistical population of this study was all physical education students that they were randomly selected. The data collection was conducted through questionnaire and library method. The instrument of this study was credit-worthy. The collected data were classified by descriptive statistical methods and were analyzed by Pearson's correlation coefficient and independent t-Test. The results showed that there was a significant relationship between the use of information and communication technology with creativity and communication skills.

Keywords: Information and communication technology, creativity, communication skills, physical education students

INTRODUCTION

The development of information and communication technology (ICT) along with its numerous consequences led to that the 21st century was called information and communication age (Aesaert, Nijlen, Vanderlinde, Braak, 2014). Today, the role and effect of ICT has become clear to everyone and all people admit it (Pásztor, Molnár, Csapó, 2015). In other words, it can be stated that the use of information technology (IT) for the coordination of affairs (Cohen and Olsen, 2013), environmental changes in accordance with the community (Teo, 2014), the speed of thinking (Ferrari, 2013), the optimal utilization of resources (Donnelly, McGarr, & Reilly, 2011),

changing lifestyles (Voogt, et al, 2012) was used publicly. It must be admitted that ICT is the conversion to a set of hardware (Koru, et al., 2016), software (Toyaa & Skidmore, 2015) and idea that it ICT facilitates optimal utilization of information (Aker and Fafchamps, 2014). Thus, ICT is internationally a unique and powerful force in social (Lohrke, et al., 2016), economic (Mithas, et al., 2012), political and education changes (Molina, et al., 2011). On the other hand, many countries and regions will not develop without joining the ICT age (Gonzalez & Gidumal, 2016). It can be said that a lot of efforts that are conducted in the field of ICT in different parts of the university are faced with

failure. Because the production of thought and creativity (Csapó, Orincz, & Molnár, 2012), the coordination with these changes, and the creation of new changes require special capabilities in the educational domain using ICT tools (Lau & Cheung, 2010). Although ICT development affects on all human activities, but education is affected significantly by it (Murtaza, et al., 2011). The necessity of using ICT in the educational system has led to special changes in educational culture of universities in today's societies. We can consider the technology as a catalyst that it activates the teaching and learning process and it changes teachers and students' role and classrooms (Mahboubi, et al., 2011). Today, many countries consider ICT as a potential factor that can create creativity and innovation in education and those have large investments to integrate ICT in their educational institutions. For example, Turkey spent about \$ 400 per person, and allocated 11.7% of its budget to ICT. Europe and Central Asia allocated 22% of their budget to ICT (Goktas, 2012). Evidences have showed that each of educational centers that were pioneers in the use of ICT at universities had increasingly developments in terms of students' learning (Vanderlinde, Aesaert, & van Braak, 2014). On the other hand we can see the relationship between ICT and creativity, so that many university professors use IT for a better understanding of concepts and the effectiveness of curriculum and the fertility of students' creativity (Zhou, Chen, Luo, 2014). The effective learning can be achieved through the use of innovative information and communication technologies. These technologies develop educational opportunities and help students to develop their skills (Gauntlett, 2011). Research evidences shows that the correct use of IT can has a positive effect on learners' involvement, teachers' positive attitudes, and students' facilitating of learning and creativity (Glaveanu, 2010). Today, the concept of creativity is not as a need, but it is as a survival condition of any

organization or society. It has been emphasized on the training and acquiring of necessary skills to apply this special human talent. It is one of key issues in our society and all developing societies and we have not dealt with these issues properly (Zarezadeh et al., 2006). Creativity has a positive relationship with them (Lio, 2009). So, ICT can increase the creativity in the society as an effective source and a way to share information quickly in today's society. On the other hand, the technology can also be effective in communication and can play the facilitation role. Also, the emergence of technologies can develop the human communications domain in all fields. The subject of ICT and communication skills is researchers' undisputed subject in the technology field so that is effective on students' knowledge, attitudes, values, and clothing (Siddiq, Scherer & Tondeur, 2016). Human has new problems along with the growing complexity of different aspects of life in today's societies, so communication has more importance. Communication skills are those skills that individuals can involve in the interpersonal interactions and communication process by them. Individuals exchange their information, thoughts, and feelings during this process through verbal and non-verbal messages (Aesaert, et al., 2014). The development of IT is an unavoidable necessity not an option in educational systems and it is an important step in the reform of educational systems. ICT has become more important in physical education and sports sciences in recent years. Also, it is a part of the physical education and has guidelines as other daily routine of physical education (Goktas, 2012). Rapid changes of technology have affected on educational institutions and higher education institutions implement slowly new technologies in the learning process and curriculum. Teachers and students can produce communications by technology and university professors can send homework, projects, and last information. Therefore, students' interest

increases for their course (Carkanji & Bozo, 2012). Courses of physical education are theoretical and practical at different levels. Thus, this field should use IT and keep pace with these changes in the teaching of physical education and sports sciences (Badri, 2012). On the other hand, the need for the acquiring of information communication of other fields and scientific and research centers is very noticeable due to the nature of physical education and sport sciences and its interdisciplinary. The use of new technology can accelerate effectively the produce of knowledge and its transmission speed in scientific studies (Nazari, 2012). The University is an institution that trains educates people and the future of the country and students played an important role in the growth and development of society. Therefore, the purpose of this study was to examine the relationship between the use of information and communication technology with creativity and communication skills in physical education students of Tehran University. Results of this study may improve communication skills with the offering of proper solutions in addition to the theoretical perceptions and the identifying of communication barriers and finally may increase students' quality of education.

METHODOLOGY

Method

This study was a cross-sectional descriptive research.

Participants

The statistical population of this study was 570 physical education students of Tehran University. 230 subjects were randomly selected by Morgan's Table. But 302 questionnaires were

distributed among students to ensure the returning of the questionnaires.

Data Collection

The data collection was conducted through questionnaire and library method.

Instruments and Tasks

The instrument was the Barton J.A. Communication skills questionnaire (1990), Maleki's IT questionnaire (2010), Torrance's Creativity Questionnaire (1990), questionnaires had a good reliability and validity in this study. Cronbach's alpha of questionnaires was respectively 0.81, 0.83, and 0.80.

Procedure

The purpose and the process of study were explained to subjects. The participants were assured that their data will be kept confidential and those will not be available to anyone. Then all subjects completed a consent form to participant in this study and they attended with the complete satisfaction in this study. The researcher distributed the questionnaires among subjects. The subjects completed questionnaires without name due to the subjects' security sense.

Data Analysis

The collected data were classified by descriptive statistical methods and were analyzed by Pearson's correlation coefficient and independent t-Test. Kolmogorov-Smirnov test was used to determine the normal distribution of data. The SPSS software (version 23) was used for data analysis ($\alpha \leq 0.05$).

Results

160 subjects were men and 142 subjects were women.

Table (1) shows the rate of access to ICT in physical education students of Tehran University.

Table1. The rate of access to ICT in physical education students of Tehran University

Variable	statistic	The amount of test:3		
		t	df	Sig
Access to software for academic orientation	1.79	229	0.074	3.14
Access to needed databases	3.768	229	0.001	3.41
Access to Iranian digital journals and libraries	1.61	229	0.107	3.10
Access to foreign digital journals and libraries	-1.07	229	0.284	2.93

$P \leq 0.05$ Students' access to ICT was average in most dimensions at the 95% confidence level (Table1).

Table2. The relationship between the use of IT and creativity in physical education students of Tehran University

Dependent variable	N	r	Sig
Creativity	230	0.464	0.001

P≤0/01

There was a significant and positive relationship between the use of IT and creativity in physical education students of Tehran University (Table 2). It means that the increasing of the use of IT can increase students' creativity in physical education students.

Table3. The communication skills in physical education students of Tehran University

Variable	statistic	The amount of test:3		
		t	df	Sig
listening skill	0.91	229	0.359	3.07
Verbal skill	-1.08	229	0.279	2.92
Feedback skill	-7.04	229	0.001	2.65
Communication skills	-2.68	229	0.008	2.88

P≤0.05

Students' listening and verbal skills were average and their feedback and communication skills were lower than average (Table 3).

Table4. The relationship between the use of ICT and communication skills in physical education students of Tehran University.

Variable	N	r	Sig
Listening skill	230	0.634	0.001
Verbal skill	230	0.558	0.001
Feedback skill	230	0.486	0.001
Communication skills	230	0.583	0.001

P≤0/01

There was a significant and positive relationship between the use of ICT and listening, verbal, feedback, and communication skills in physical education students of Tehran University (Table 4). It means that the increasing of the use of ICT can increase listening, verbal, feedback, and communication skills in physical education students.

Table5. The comparison of study variables in female and male physical education students of Tehran University

Variable	Gender	Mean	t	df	Sig
Access and use of ICT	Male	2.75	2.49	228	0.022
	Female	2.60			
communication skills	Male	3.26	3.17	228	0.005
	Female	3.85			
Creativity	Male	2.67	1.14	228	0.12
	Female	2.57			

The rate of access to ICT, the use of ICT, communication skills, and creativity has been compared in female and male physical education students in table (5). Male students' rate of access to ICT and their use of ICT were higher than female students. Female students' communication skills were higher than male

students. But there was no difference between male and female students in the rate of creativity (Table 5).

DISCUSSION AND CONCLUSION

The purpose of this study was to examine the relationship between the use of information and

communication technology with creativity and communication skills in physical education students of Tehran University. The results of this study showed that there was a significant relationship between the use of ICT and creativity. It can be concluded that the development of ICT has created a new situation in the world and it has affected positively on behaviors, skills, relationships, and social interactions at the micro and macro aspects especially in students and education community. However, the use of ICT has affected on students' creativity and it is important at the present time. But, ICT is used in the form of test error in universities that one of the reasons can be financial resources of universities. ICT helps students to aware about their life. They become aware from the role of ICT in daily life and they become familiar with IT tools. They use these tools independently and team. Students become aware with different method of collecting information and the organization and presentation of information that those affect on their creativity so that the type of human activities has changed to headwork in organizations with the development of technology and automation tasks. This reveals the need to the creative thinking and the promotion of creativity among academics. The creation of any new technology is the produce of human creative mind. Undoubtedly, this created technology increases the foster of creativity. ICT helps us to free ourselves from useless work and it enables us to be more creative as a human. This result of this study is consistent with Chen et al., (2015); Zhou et al., (2014); Pásztor, Molnár, and Csapó's (2015) study. The easy access to needed information that has changed students' learning can be a reason for the explanation of a significant relationship between these two variables. The provision of favorable environment for the use of educational centers of ICT to help students' creation of creativity, thinking ability, and innovative can be other reason for the explanation

of a significant relationship between these two variables. Also, students have become familiar with the use of ICT due to the emphasis on ICT skills training in universities and scientific societies so that they have been able to improve their creativity and utilization methods of ICT. The holding of training workshops with an innovative approach has led to increase creativity and a significant relationship between the use of ICT and creativity in students. Thus, there is this possibility that the use of ICT can increase in physical education students with the reinforcement of mentioned reasons and the removing of barriers. This enriches the training in this field. Today, communication skills appear as an essential need between humans who communicate to each other. Human relationships provide after the life satisfaction, self-confidence, motivation, and mutual trust that is affected by communication skills. The effective communication is one of important pillars of progress and human excellence. Many personal and social problems that today's society is involved with them are due to the lack of effective communication, communication system, and incorrect communication interpretations. Students can communicate with others through effective communication skill in a way that leads to positive responses not negative responses. The human's social nature requires that a person communicates with different aspects of the community and its collection. Communication skills affect on students relationships and effective performance in society and at university. The results of this study showed that there was a significant relationship between ICT and communication skills in physical education students of Tehran University. This result is consistent with results of Ozkara, et al., (2014); Weiland, et al., (2013); Siddiq, Scherer, and Tondeur (2016)'s study. The use of verbal skill, listening skill, the presentation of feedback to others, and the ability to receive suggestions and criticisms that are physical education students'

characteristics with high skills can be a main reason for the explanation of a significant relationship between these two variables. Although some mentioned subscales were statistically about medium and low, there was a significant relationship between these two variables. This result is consistent with result of Ulukan and Dalkili's (2012) study. Communication skills have been expressed the perception of messages by individuals using their judgments and assessments. It has been stated that messages and data are not and information. Those are the source of information. Also, those are important when those are used in a complex process and are interpreted. Here are converted to information that it can be a confirmation for the relationship between ICT and communication skills. Physical education students as future teachers and coaches students need the strong expression, good listening skills, and feedback skills. They will not be able to induce teaching concepts without these skills so the reinforcement of these skills is very important. Generally, physical education students were moderate and weak in communication, verbal, listening, and feedback skills. Communication skills are an integral part of human life so we recommend that we consider the teaching of these skills in all areas such as personal, family, and business relationships. If individuals learn these skills, they will make more effective communication and these skills will increase the quality of their family, friendly, and business relationships. There was a significant difference between male and female students in this study. Also, there was a significant difference between male and female students in the creativity. It is recommended that Physical Education Faculties improve online methods, multimedia, and hypertext methods, online education, virtual education, virtual libraries, virtual laboratories, and interactive environment and use modern teaching methods such as group practices, project, and research due to the relationship between the use of ICT and

communication skills. Students are encouraged to accept the collaboration with others using new technologies. We recommend the creation of an appropriate environment for students to gather experience and to perform group activities due to the increasing of creativity and communication skills.

REFERENCES

1. Koen Aesaert, Daniël van Nijlen, Ruben Vanderlinde, Johan van Braak. (2014) Direct measures of digital information processing and communication skills in primary education: Using item response theory for the development and validation of an ICT competence scale *Journals Elsevier. Computers & Education* 76 (2014) 168–181.
2. Attila Pásztor, Gyöngyvér Molnár, Benő Csapó. (2015). Technology-based assessment of creativity in educational context: the case of divergent thinking and its relation to mathematical achievement. *Journals Elsevier Thinking Skills and Creativity* xxx (2015) xxx–xxx.
3. Cohen, J. F., & Olsen, K. (2013). The impacts of complementary information technology resources on the service-profit chain and competitive performance of South African hospitality firms. *International Journal of Hospitality Management*, 34, 245e254.
4. Teo, T. (2014). Unpacking teachers' acceptance of technology: tests of measurement invariance and latent mean differences. *Computers & Education*, 75, 127e135. <http://dx.doi.org/10.1016/j.compedu.2014.01.014>.
5. Ferrari, A. (2013). DIGCOMP: A framework for developing and understanding digital competence in Europe. Luxembourg: Publications Office of the European Union.
6. Union. <http://dx.doi.org/10.2788/52966>.
7. Donnelly, D., McGarr, O., & O'Reilly, J. (2011). A framework for teachers' integration

- of ICT into their classroom practice. *Computers & Education*, 57, 1469e1483. <http://dx.doi.org/10.1016/j.compedu.2011.02.014>.
8. Voogt, J., Fisser, P., Roblin, N. P., Tondeur, J., & van Braak, J. (2012). Technological pedagogical content knowledge e a review of the literature. *Journal of Computer Assisted learning*, 29, 109e121. <http://dx.doi.org/10.1111/j.1365-2729.2012.00487.x>.
 9. Günes Koru ,Dari Alhuwail, Maxim Topaz, Anthony F. Norcio, Mary Etta Mills(2016). Investigating the Challenges and Opportunities in Home Care to Facilitate Effective Information Technology Adoption. *Journal JAMDA* 17 (2016) 53e58.
 - 10.Hideki Toyaa, Mark Skidmoreb(2015).Information/communication technology and natural disaster vulnerability . *Journal Economics Letters* 137 (2015) 143–145.
 - 11.Aker, J.C., Fafchamps, M., 2014. Mobile phone coverage and producer markets: evidence from West Africa. *World Bank Econ. Rev.* 262–292.
 - 12.Franz T. Lohrke, Cynthia Frownfelter-Lohrke, David J. Ketchen, Jr. (2016). The role of information technology systems in the performance of mergers and acquisitions. *Journal Business Horizons* (2016) 59, 7—12.
 - 13.Mithas, S., Tafti, A. R., Bardhan, I., & Goh, J. M. (2012). Information technology and firm profitability: mechanisms and empirical evidence. *MIS Quarterly*, 36(1), 205e224.
 - 14.Ruiz-Molina, M. E., Gil-Saura, I., & Moliner-Velázquez, B. (2011). Does technology make a difference? Evidence from Spanish hotels. *Service Business*, 5(1), 1e12.
 - 15.Santiago Meli_an-Gonzalez*, Jacques Bulchand-Gidumal(2016). A model that connects information technology and hotel performance. *Journal Tourism Management* 53 (2016) 30e37.
 - 16.Csapó, B., L’orincz, A., & Molnár, G. (2012). Innovative Assessment Technologies in Educational Games Designed for Young Students. In D.
 - 17.Lau, S., & Cheung, P. C. (2010). Creativity assessment: Comparability of the electronic and paper-and-pencil versions of the Wallach-Kogan Creativity
 - 18.Tests. *Thinking Skills and Creativity*, 5(3), 101–107. <http://dx.doi.org/10.1016/j.tsc.2010.09.004>.
 - 19.Murtaza, A. Shafqat , A. Ud Din, M. (2011). Problem faced into the use of information technology distance education. *interdisciplinary journal of contemporary researching business*. 3(1).pp 784-793.
 - 20.Mahboubi T, Zandi B, Maleki H, Karimi B. (2011). The effect of ICT on students’ self-efficacy, academic performance, and entrepreneurial in Payam Noor University. *Quarterly of Educational Management and Planning*. 4(6): 8-31.
 - 21.Goktas, Z. (2012).The Attitudes of Physical Education and Sport Studentstowards Information and Communication Technologies .*TechTrends*, 56(2): 22-30.
 - 22.Vanderlinde, R., Aesaert, K., & van Braak, J. (2014). Institutionalised ICT use in primary education: a multilevel analysis. *Computers & Education*, 72, 1e10.
 - 23.<http://dx.doi.org/10.1016/j.compedu.2013.10.007>.
 - 24.Chunfang Zhou , Hongbing Chen, Lingling Luo (2014). Students’ perceptions of creativity in learning Information Technology (IT) in project groups. *journal Computers in Human Behavior* 41 (2014) 454–463.
 - 25.Gauntlett, D. (2011). Making is connecting, the social meaning of creativity, from DIY and knitting to YouTube and Web 2.0. UK: Polity.
 - 26.Glaveanu, V. P. (2010). Paradigms in the study of creativity: Introducing the

27. perspective of cultural psychology. *New Ideas in Psychology*, 28, 79–93.
28. Zarezadeh K, Kadivar P. (2006). The comparison of self-efficacy and creativity between students who use internet and who do not use internet. *Journal of Education*. 89: 18-39.
29. Lio , x. (2009). How entrepreneurial orientation moderates the effect of knowledge .*System research and behavioral management on innovation*, vol.26, Iss. 6. P: 645.
30. Fazilat Siddiq, Ronny Scherer b, Jo Tondeur(2016). Teachers' emphasis on developing students' digital information and communication skills (TEDDICS): A new construct in 21st century education. *journal Computers & Education* 92-93 (2016) 1e14.
31. Carkanji, V. Bozo,D. (2012).Technology utilization in higher education and in sport management teaching. *J. Hum.Sport Exerc.*7(1), pp 202-207.
32. Badri Azin Y. (2012). Training and communication (ICT) needs assessment and in science faculty of physical education and sports sciences of universities. *Sport Management*. 13:5-25.
33. Nazari R, Ehsani M, Ghanjavi F.A. Ghasemi H. (2012). The effects of communication skills and interpersonal communication on sports managers' organizational effectiveness of Iran. *Journal of Sport Management Review*. 4(16): 157-173.
34. Anne Weiland, Annette H. Blankenstein, Marie tte H.A. Willems, Jan L.C.M. Van Saase, Henk T. Van der Molen, Alexandra M. Van Dulmen, Lidia R. Arends (2013). Post-graduate education for medical specialists focused on patients with medically unexplained physical symptoms; development of communication skills training programme. *Patient Education and Counseling* 92 (2013) 355–360.
35. Huseyin Ozkana, Mehmet Dallia, Erkan Bingolb, Sabri Can Metinc, DuyguYaralib. (2014). Examining the relationship between the communication skills and self-efficacy levels of physical education teacher candidates. *Procedia - Social and Behavioral Sciences* 152 (2014) 440 – 445.
36. Ulukan, M & Dalkilic, M. (2012). Primary school students' level of participation in sport in terms of different variables and the relationship between the level of participation and communication skills. *Procedia - Social and Behavioral Sciences*, Vol 46, PP: 1786–1789.