## **Social Media Technology on Higher Education**

Subjects: Education & Educational Research | Social Issues Contributor: Sofia D. Anastasiadou, Stylianos Papalexandris

The COVID-19 pandemic led universities to transform the traditional teaching methodologies into distance education. Therefore, social media has become progressively prominent as teaching and learning resources in universities. Social media consists of several activities such as interacting with friends, posting images and videos, engaging in conversation on public topics, watching the news, playing games, introducing real-time web chat instant messages, elements that allow networking, communication, and collaboration. Defining social media is a challenging task since it is an area that is continuously changed.

Keywords: COVID-19; higher education; social media; technology

## 1. Introduction

According to Joosten [1], the term "social media" is generally used to describe any number of technological systems connected to cooperation and community. More specifically, as Kietzmann et al. [2] quoted, social media "employs mobile and web-based technologies to create highly interactive platforms via which individuals and communities share, co-create, discuss, and modify user-generated content". Likely, Dulek and Saydan [3] defined social media as "social platforms where users share their information, manners, interests through the internet or mobile systems" and big data applications [4][5][6]. Additionally, Grosse et al. [7] underlined that social media is a way of sharing online information among people in a virtual community and creating material. From our perspective, social media can be more easily defined and understood through some vital examples. Some of the most popular examples of social media are (a) Content Communities such as Youtube, (b) Blogs like WordPress, (c) Collaborative Projects such as Wikipedia, (d) Social Networking Sites like Facebook, Instagram, Twitter, and LinkedIn and (e) Social Messaging Applications such as Viber, Skype and WhatsApp [3][12][12][13][14]

According to Jiao et al. [15], social media is used to create social relationships and educational purposes. In several contexts, social media has attracted the interest of academics. One of these issues, limited but growing research, was using social media as a learning tool in higher education [16][17] or as mobile learning in higher education [18][19]. To the best of our knowledge, limited studies have been conducted on social media and its impact on education in Cyprus. The issue has increased in importance in light of the recent global changes because of COVID-19. The pandemic has changed teaching and learning from the conventional approach to a fully online way [20]. The present article is devoted to investigating the potential role of social media as a facilitator of learning in higher education in Cyprus, especially during a health crisis. It assesses the extent to which social media can be used in academic education as a learning and teaching tool. Which are the advantages and disadvantages of using social media in universities? Does social media enhance learning and knowledge and promote community connection? Is it a plague or a blessing? The potential obstacles that may emerge around adopting social media as communication for teaching and learning purposes are identified. It also adds to the existing literature as a forum for academic purposes on the use of social media.

Social media is used by millions of people all over the world. Young learners, teenagers, high school students, university students and elderly people use social media for communication, entertainment, work, sales, shopping, information sharing, travelling information sharing, sharing experiences, news, announcements, and so forth. Facebook, Twitter, Instagram, Wiki, Google, YouTube, and so forth are the most common social media. University departments are used Facebook to advertise their departments. Department of Biostatistics at Columbia University, Department of Biostatistics at the Harvard, Department of Political Sciences at the University of Oregon, Department of Psychology at Columbia University, Department of Biochemistry at University of Oxford, Department of Informatics at University of Western Macedonia, Department of Music, University of Sheffield, Department of Art at Miami University and many many other books on Facebook with the view to supporting educational developments. The majority of them are considering social media both as learning as well as instruction means passing through a precise platform [21]. Social media networking platform permits skills enhancement as well as communication skills [22], facilitates collaboration among peers from different university departments, different universities and different countries with different cultural and learning opportunities, different modules and enables both teacher and student to be active users in order to have the chance to learn in a collaborative environment by sharing information and various learning activities [23][24] has a serious impact on social media users, enables alliance, cooperation and dynamic interaction between students and teachers, and enhances innovativeness and imagination as well as enhancing student participation in learning activities [25][26], increases selfesteem, helps the development of a foreign language reading and writing and oral communications skills, increases students' awareness and finally enhances academic performance. In addition social media networking permits students to

be informed continually, dissemination information is abundant and the information is shared rapidly and is effortlessness and widespread, social network takes each part of a person's life time and is a social platform for users to make contacts and start friendships, read news, spread information and a huge amount of data, to generate influence as well as influence teaching, learning processes and educational processes, and knowledge successfully [27], work independently, individually, and autonomously according to their appropriate working hours seeking the exact information they need in order to expand their own horizons [28]. What is of major importance is the fact that the use of network platforms for education purposes can contribute to individuals' personal commination capabilities not only for educational targets but mostly for carrier purposes and job opportunities [22]. In addition it was stated [29] that social media networking not only offers opportunities related to interaction, communication, information sharing, video sharing and learning material sharing but also offers the opportunity for emotional intelligence sharing.

## 2. Social Media Technology on Higher Education in COVID-19 Pandemic

Social media is used in a variety of different sectors by different people. Social media is used for informal social networking or improving social capital and for online engagement and marketing, establishing customer relationships, problem-solving, and grievance resolution [30][31][32][33]. Performance in the industry is due to the successful use of information and communication technologies in today's digital economy. Higher education institutions are not excluded from these continually advancing changes in technology. They should, therefore, not afford to fall behind these innovations since they can not only provide the academic community with useful insights but potentially enhance learning.

A multitude of studies that explore its role in higher education have contributed to the overwhelming popularity of social media. These involve the study of the association between the use of social media by higher education researchers for professional and teaching purposes  $^{[34]}$ ; use of social media for learning concerning the learning styles of students  $^{[35]}$ ; online social networks' effect on the academic success  $^{[36]}$ ; learner-generated knowledge and its impact on student achievement and satisfaction  $^{[37][38]}$  and success indicators of social media usage  $^{[39]}$  and mature critical thinking  $^{[40]}$  and trade  $^{[41][42]}$ . Selwyn  $^{[43]}$  stated that even though there are controversies on social media usage for education and information creation, educators are continuously encouraged to figure out ways to use social media in higher education environments effectively.

According to Hamid et al. [44], social networking can be used for content creation, sharing, engagement, and collective socialization in higher education. Social networking can be enabled to provide instructional materials, educational data, update and promote contact and collaboration. In the same vein, various researchers argued that social media could encourage communication among faculty members and students, support students, strengthen self-confidence and develop a strong partnership and community [45][46][47][48][49][50][51][52][53]. Specifically, McCarroll and Curran [49] stated that the use of social media is "beneficial to students on a number of levels, facilitating knowledge exchange, alleviating apprehension, enabling socialization and building- community".

Indeed, there is a rigorous movement in using social media by universities. According to Blackhow et al. [53][54], an excellent distance education plan can help remote learning appear not so remote. Some universities create their channels to encourage students to watch videos, cultivate concerted efforts by students and teachers, improve the learning process, and enable students to provide real-time feedback [55][56][57]. Other institutions of higher education use Learning Management Systems, which are computer systems for the management and administration of teaching material and instructional and e-learning program evaluation [58]. The advantage of using these systems is that all learning information is stored and organized in a virtual learning area (such as Moodle). Similarly, other universities use Blended Learning, which positively impacts the teaching process [59][60][61]. According to various researchers, blended learning is adopted to reinforce conventional teaching methods with online sessions, which leads the students to respond easier and faster rate of learning [62][63][64].

The use of social media in higher education continues to increase and change as supporters discuss its merits and demerits. According to the literature, the use of social media also has some drawbacks. The first disadvantage while using social media is the difficulty to ensure personal privacy. It is easy to keep track of people's online activities through advanced technology, whose security and privacy may be threatened  $\frac{[65][66][67]}{[65][67]}$ . Moran et al.'s  $\frac{[68]}{[68]}$  study supported that faculty members had great concerns about keeping their personal lives and profiles safe. In the same vein, students can be discriminated against because of social media usage  $\frac{[69]}{[9]}$ , being negatively or positively biased by their teachers  $\frac{[70]}{[7]}$ , or facing bullying by their peers who are not friendly  $\frac{[71]}{[7]}$ . At the same time, the complexity of online communication makes misinterpretations possible and may lead to conflicts. Moreover, some advocated that social media leads to antisocial behavior because all the actions occur in a virtual student world, which is sometimes very different from the real one  $\frac{[72]}{[72]}$ .

The COVID-19 pandemic has imposed digital platforms as the only means for people to maintain socio-emotional connection [73]. The COVID-19 pandemic came with severe restrictions on social contacts and mandatory lockdowns. As a result, the use of digital devices has multiplied around the world. Consequently, people are being pushed to rely on digital platforms. Education, social contact, education and work, as well as socialization, can only occur online with incredible implications for mental health and user balance. While careful use of digital devices is associated with well-being,

excessive screen time is reported to be closely associated with a number of negative mental health outcomes, low emotional stability, isolation, depression and anxiety [74].

It is not strange that the reduction or even lack of social connections and contacts affects the mental health of younger people as well as older people. On a daily basis and around the world people of all ages connect to social networking platforms such as Facebook, Instagram, Youtube and Twitter to communicate with their friends and connect with new online friends. Online friends often do not know each other through their social and professional life. Their connection is through the internet and is not identical to real social life. Social contact brings people closer, they share contact, people can hug each other in joy or sorrow, take a walk together, travel, have a meal, and so forth. In the case of the internet, where the question is communication, people feel indeed alone. Feelings of loneliness, anxiety and stress are not removed.

In regard to the various health problems resulting from prolonged use of computers, studies have shown the effects that long hours have on children's health. More specifically, studies have shown that the longer children stay in front of a computer screen, the more they become overweight and have greater sleep disorders and vision disorders and loss of attention and stress [75][76]. There is also an augmented danger related to musculoskeletal problems, vision problems, stress disorders problems, headaches, sleeping problems, hearing problems from the headphones, fear of technology, internet addiction, and so forth [77][78][79].

## References

(accessed on 3 September 2009).

- 1. Joosten, T. Social Media for Educators: Strategies and Best Practices; Jossey-Bass: Hoboken, NJ, USA, 2012.
- 2. Kietzmann, J.H.; Hermkens, K.; McCarthy, I.P.; Silvestre, B.S. Social media? Get serious! Understanding the functional building blocks of social media. Bus. Horiz. 2011, 53, 241–251.
- 3. Dulek, B.; Saydan, R. The Impact of Social Media Advertisement Awareness on Brand Awareness, Brand Image, Brand Attitude and Brand Loyalty: A Research on University Students. Int. J. Contemp. Econ. Adm. Sci. 2019, 9, 470–494.
- 4. Souravlas, S.; Anastasiadou, S. Pipelined Dynamic Scheduling of Big Data Streams. Appl. Sci. 2020, 10, 4796.
- 5. Souravlas, S.; Katsavounis, S.; Anastasiadou, S. On Modeling and Simulation of Resource Allocation Policies in Cloud Computing Using Coloblack Petri Nets. Appl. Sci. 2020, 10, 5644.
- 6. Souravlas, S.; Anastasiadou, S.; Katsavounis, S. More on Pipelined Dynamic Scheduling of Big Data Streams. Appl. Sci. 2021, 11, 61.
- 7. Grosseck, G.; Bran, R. Script towards Research 2.0: The Influence of Digital and Online Tools in Academic Research. World J. Educ. Technol. Curr. Issues 2016, 8, 132–138.
- 8. Kaplan, A.M.; Haenlein, M. Users of the world, unite! The challenges and opportunities of Social Media. Bus. Horiz. 2010. 53. 59–68.
- 9. Sutikno, T.; Handayani, L.; Stiawan, D.; Riyadi, M.A.; Subroto, I.M.I. WhatsApp, Viber and Telegram: Which is the Best for Instant Messaging? Int. J. Electr. Comput. Eng. (IJECE) 2016, 6, 909–914.
- 10. Balakrishnan, V.; Gan, C.L. Students' learning styles and their effects on the use of social media technology for learning. Telemat. Inform. 2016, 33, 808–821.
- Chugh, R.; Joshi, M. Challenges of knowledge management amidst rapidly evolving tools of social media. In Harnessing Social Media as a Knowledge Management Tool; Chugh, R., Ed.; IGI Global: Hershey, PA, USA, 2017; pp. 299–314.
- 12. Bellavista, P.; Foschini, L.; Ghiselli, N. Analysis of Growth Strategies in Social Media: The Instagram Use Case. 2019.

  Available online:

  https://www.researchgate.net/publication/336336530\_Analysis\_of\_Growth\_Strategies\_in\_Social\_Media\_The\_Instagram\_Use\_Case#fullTexagram\_Use\_Case#
- 13. Rehm, M.; Manca, S.; Brandon, D.L.; Greenhow, C. Beyond disciplinary boundaries: Mapping educational science in the discourse on social media. Teach. Coll. Rec. 2019, 121, 1–24.
- 14. Blackhow, C.; Galvin, S.; Brandon, D.; Askari, E. A decade of research on K-12 teaching and teacher learning with social media: Insights on the state-of-the-field. Teach. Coll. Rec. 2020, 122, 1–72.
- 15. Jiao, Y.; Gao, J.; Yang, J. Social value and content value in social media: Two ways to flow. J. Adv. Manag. Sci. 2015, 3, 299–306.
- 16. Gupta, A. Scope and implications of social media in the context of higher education: Review of researches. MIER J. Educ. Stud. Trends Pract. 2014, 4, 231–253.
- 17. Tess, P.A. The role of social media in higher education classes (real and virtual)—A literature review. Comput. Hum. Behav. 2013, 29, A60–A68.
- 18. Romero, O.C. Social Media as learning tool in higher education: The case of Mexico and South Korea. Rev. Electron. Sin. 2015, 44, 1–15.

- 19. Blackhow, C.; Galvin, S. Teaching with Social Media: Evidence-based Strategies for Making Remote Higher Education Less Remote. Inf. Learn. Sci. 2020, 121, 513–524.
- 20. McKibbin, W.J.; Fernando, R. The Global Macroeconomic Impacts of COVID-19: Seven Scenarios. Asian Econ. Pap. 2020, 20, 1–55.
- 21. Issa, T.; Sulaiman Ghazi, B.; Ibrahim Al-Oqily, A.; Baltaci Goktalay, S.; Köse, U.; Issa, T.; Salih, B.A.; Almufaraj, W.K. Use of social networking in the Middle East: Student perspectives in higher education. Heliyon 2019, 7, 2021.
- 22. Kim, M.J.; Hwang, Y.S.; Hwang, H.S. Utilising social networking services as a collective medium to support design communication in team collaboration. Archnet-IJAR 2020, 14, 409–421.
- 23. Chauhan, J.A.; Goel, A. Feature-based analysis of social networking and collaboration in MOOC. Int. J. Dist Educ. Technol. 2020, 18, 34–51.
- 24. Hinojo-Lucena, F.-J.; Aznar-Díaz, I.; Cáceres-Reche, M.-P.; Romero-Rodríguez, J.-M. Use of social networks for international collaboration among medical students. Educ. Méd. 2020, 21, 137–141.
- 25. Hirci, N.; Pisanski Peterlin, A. Face-to-face and Wiki revision in translator training: Exploring the advantages of two modes of collaboration. Interpret. Transl. Train. (ITT) 2020, 14, 38–57.
- 26. Issa, T. e-Assessments via Wiki and Blog Tools: Students' Perspective. In Educational Networking; Springer: Berlin, Germany, 2020; ISBN 978-3-030-29972-9.
- 27. Guo, Y.; Cao, J.; Lin, W. Social network influence analysis. In Proceedings of the 2019 6th International Conference on Dependable Systems and Their Applications (DSA), Harbin, China, 3–6 January 2019; pp. 517–518.
- 28. Lim, J.; Newby, T.J. Some Preservice teachers' Web 2.0 experiences and perceptions on Web 2.0 as a personal learning environment. J. Comput. High. Educ. 2020, 32, 234–260.
- 29. Gikas, J.; Grant, M.M. Mobile computing devices in higher education: Student perspectives on learning with cellphones, smartphones social media. Internet High. Educ. Mob. 2013, 19, 18–26.
- 30. Eriksson, M.; Larsson, E. Facebook as a Tool for Building Customer Relationships in the Hospitality Industry: A Quantitative Study on the Effects of Facebook Activities on Relationship Drivers and Relational Benefits. 2014. Available online: http://www.diva-portal.org/smash/get/diva2:733323/FULLTEXT01.pdf (accessed on 1 March 2020).
- 31. Cvijikj, I.P.; Michahelles, F. Online engagement factors on Facebook brand pages. Soc. Netw. Anal. Min. 2013, 3, 843–861
- 32. Pinto, M.B.; Mansfield, P. Facebook as a complaint mechanism: An investigation of millennials. J. Behav. Stud. Bus. 2011, 4, 1–12.
- 33. Ellison, N.B.; Steinfield, C.; Lampe, C. The benefits of Facebook 'friends': Social capital and college students' use of online social network sites. J. Comput.-Mediat. Commun. 2019, 12, 1143–1168.
- 34. Manca, S.; Ranieri, M. "Yes for sharing, no for teaching!": Social Media in academic practices. Internet High. Educ. 2016, 29, 63–74.
- 35. McCracken, H. The Three Immutable Laws of Online Privacy. PC World 2008, 8, 13.
- 36. Paul, J.A.; Baker, H.M.; Cochran, J.D. Effect of online social networking on student academic performance. Comput. Hum. Behav. 2012, 28, 2117–2127.
- 37. Orús, C.; Barles, M.J.; Belanche, D.; Casalo, L.; Fraj, E.; Gurrea, R. The effects of learner-generated videos for YouTube on learning outcomes and satisfaction. Comput. Educ. 2016, 95, 254–269.
- 38. Gür, D.; Kılıç Türel, Y. Parenting in the digital age: Attitudes, controls and limitations regarding children's use of ICT. Comput. Educ. 2022, 183, 104504.
- 39. Parameswaran, M.; Whinston, A.B. Social Computing: An Overview. Commun. Assoc. Inf. Syst. 2007, 19, 762–780.
- 40. Anastasiadou, S.; Dimitriadou, C. What does Critical Thinking mean? A statistical data analysis of pre-service teachers' defining statements. Int. J. Humanit. Soc. Sci. (IJHSS) 2011, 1, 73–83.
- 41. Anastasiadis, L. Emotional Intelligence Influences on Consumers Consumer Behavior. Int. J. Entrep. Innov. Compet. IJEIC 2019, 2. Available online: https://hephaestus.nup.ac.cy/bitstream/handle/11728/11527/article1.pdf? sequence=1&isAllowed=y (accessed on 1 March 2022).
- 42. Anastasiadis, L.; Christoforidis, C. Evaluating citizens' actual perceptions and expectations and assessing e-Service Quality Gap in Public Sector related to e-Government Services. Int. J. Entrep. Innov. Compet. IJEIC 2019, 1. Available online: http://hephaestus.nup.ac.cy/bitstream/handle/11728/11395/Paper5.pdf?sequence=1&isAllowed=y (accessed on 24 February 2022).
- 43. Selwyn, N. Social Media in Higher Education. Eur. World Learn. 2012, 1, 1–10. Available online: http://sites.jmu.edu/flippEDout/files/2013/04/sample-essay-selwyn.pdf (accessed on 20 February 2022).
- 44. Hamid, S.; Chang, S.; Kurnia, S. Identifying the use of online social networking in higher education. In Proceedings of the ASCILITE, Auckland, New Zealand, 6–10 December 2009.
- 45. Sobaih, A.E.; Moustafa, M. Speaking the same language: The value of social networking sites for hospitality and tourism higher education in Egypt. J. Hosp. Tour. Educ. 2016, 28, 46–56.

- 46. Dyson, B.; Vickers, K.; Turtle, J.; Cowan, S. Evaluating the use of Facebook to increase student engagement and understanding in lecture-based classes. High. Educ. 2015, 69, 303–313.
- 47. Davis, C., III; Deil-Amen, R.; Rios-Aguilar, C.; Gonzalez Canche, M.S. Social Media in Higher Education: A Literature Review and Research Directions; The Centre for the Study of Higher Education at the University of Arizona and Claremont Graduate University: Claremont, CA, USA, 2012.
- 48. Hung, H.T.; Yuen, S.C.Y. Educational use of social networking technology in higher education. Teach. High. Educ. 2010, 15, 703–714.
- 49. McCarroll, N.; Curran, K. Social networking in education. Int. J. Innov. Digit. Econ. 2013, 4, 1–15.
- 50. Wang, W.H.; Hao, Y.M.; Cao, Y.H.; Li, L. A Cloud-Based Real-Time Mobile Collaboration Wiki System. Appl. Mech. Mater. 2014, 441, 928–931.
- 51. Schlenkrich, L.; Sewry, D. Factors for successful use of social networking sites in higher education. S. Afr. Comput. J. 2012, 49, 12–24.
- 52. Sobaih, A.E.E.; Moustafa, M.A.; Ghandforoush, P.; Khan, M. To use or not to use? Social media in higher education in developing countries. Comput. Hum. Behav. 2016, 58, 296–305.
- 53. Blackhow, C.; Galvin, S.; Staudt Willet, K.B. What should be the role of social media in education? Policy Insights Behav. Brain Sci. 2019, 6, 178–185.
- 54. Andersson, A.; Hatakka, M.; Grönlund, Å.; Wiklund, M. Reclaiming the students–coping with social media in 1:1 schools. Learn. Media Technol. 2014, 39, 37–52.
- 55. Torres-Ramírez, M.; García-Domingo, B.; Aguilera, J.; Casa, D.L. Video-sharing educational tool applied to the teaching in renewable energy subjects. Comput. Educ. 2014, 73, 160–177.
- 56. Everson, M.; Gundlach, E.; Miller, J. Social media and the introductory statistics course. Comput. Hum. Behav. 2013, 29, A69–A81.
- 57. Duncan, I.; Yarwood-Ross, L.; Haigh, C. YouTube as a source of clinical skills education. Nurse Educ. Today 2013, 33, 1576–1580.
- 58. Collins, J. Writing multiple-choice questions for continuing medical education activities and selfassessment modules. Radiographics 2006, 26, 543–551.
- 59. West, K.; Williamson, J. Wikipedia: Friend or foe? Ref. Serv. Rev. 2009, 37, 260-271.
- 60. Artal-Sevil, J.S.; Romero-Pascual, E.; Artacho-Terrer, J.M. Blended-learning: New trends and experiences in higher education. In Proceedings of the 8th International Conference of Education, Research and Innovation, Seville, Spain, 18–20 November 2015.
- 61. Alebaikan, R.; Troudi, S. Blended learning in saudi universities: Challenges and perspectives. ALT-J. 2010, 18, 49-59.
- 62. Anastasiadou, S.; Anastasiadis, L.; Angeletos, T.; Vandikas, J. A Multidimensional Statistical Analysis of Students' Attitudes toward Physics. Int. J. Divers. Organ. Communities Nations 2010, 6, 341–356.
- 63. Graham, A.; Toon, I.; Wynn-William, K.; Beatson, N. Using 'nudges' to encourage student engagement: An exploratory study from the UK and New Zealand. Int. J. Manag. Educ. 2017, 15, 36–46.
- 64. Korr, J.; Derwin, E.B.; Blacke, K.; Sokoloff, W. Transitioning an adult-serving university to a blended learning model. J. Contin. High. Educ. 2012, 60, 2–11.
- 65. Au, M.; Lam, J.; Chan, R. Social media education: Barriers and critical issues. In Technology in Education. Transforming Educational Practices with Technology; Springer: Berlin/Heidelberg, Germany, 2015; pp. 1999–2050.
- 66. Brew, L.; Cervantes, J.M.; Shepard, D. Millennial counselors and the ethical use of Facebook. Prof. Couns. 2013, 3,
- 67. Boyd, D.M.; Ellison, N.B. Social network sites: Definition, history, and scholarship. J. Comput.-Mediat. Commun. 2007, 13, 210–230.
- 68. Moran, M.; Seaman, J.; Tinti-Kane, H. Teaching, Learning, and Sharing: How Today's Higher Education Faculty Use Social Media; Research Report; Pearsons Learning Solutions, and Babson Survey Research Group: Boston, MA, USA, 2011.
- 69. Mendez, J.P.; Le, K.; De La Cruz, J. Integrating Facebook in the classroom: Pedagogical dilemmas. J. Instr. Pedagog. 2014, 13, 1–10.
- 70. Allen, J.V.; Roberts, M.C. Critical incidents in the marriage of psychology and technology: A discussion of potential ethical issues in practice, education, and policy. Prof. Psychol. Res. Pract. 2011, 42, 433–439.
- 71. Chen, Y.-C. Linking learning styles and learning on mobile Facebook. Int. Rev. Res. Open Distrib. Learn. 2015, 16, 94–114
- 72. Hope, A. Educational heterotopia and students' use of Facebook. Australas. J. Educ. Technol. 2016, 32, 47-58.
- 73. Kanekar, A.; Sharma, M. COVID-19 and Mental Well-Being: Guidance on the Application of Behavior and Positive Well-Being Strategies. Healthcare 2020, 8, 336.

- 74. Allen, M.S.; Walter, E.E.; Swann, C. Sedentary Behavior and Risk of Anxiety: A Systematic Review and Meta-Analysis. J. Affect. Disord. 2019, 242, 5–12.
- 75. Sanders, T.; Parker, P.D.; del Pozo-Cruz, B.; Noetel, M.; Lonsdale, C. Type of screen time moderates effects on outcomes in 4013 children: Evidence from the Longitudinal Study of Australian Children. Int. J. Behav. Nutr. Phys. Act. 2019, 16, 117.
- 76. Yang, L.; Cao, C.; Kantor, E.D.; Ngyyen, L.H.; Zheng, X.; Park, Y.; Giavannucci, E.L.; Matthews, C.; Colditz, G.A.; Cao, Y. Trends in sedentary behavior among the US population, 2001–2016. J. Am. Med. Assoc. 2019, 321, 1587.
- 77. Namlu, A.G.; Ceyhan, E. Billgisayar Kaygisi Üniversite Öğrencileri Üzerinde Bir Çalişma; Anadolu Üniversiteri Yayınlari: Eskişehir, Turkey, 2002; p. 1353.
- 78. Bugün, I.; Yardimci, H.; Ertemel, S.; Öğün, A.M.; Dinçses, E. Üniversite Oğrencilerinin Bilgisayar Kullanımınailişkin Bilgi, Davranış ve Ilişkili Sağlık Sorunları; Marmara University School of Medicine Student Congress: İstanbul, Turkey, 2006
- 79. Guerrero, N.D.; Vanderloo, L.M.; Rhodes, R.E.; Faulkner, G.; Sarah, A.; Moore, S.A.; Tremblay, M.S. Canadian children's and youth's adherence to the 24-h movement guidelines during the COVID-19 pandemic: A decision tree analysis. J. Sport Health Sci. 2020, 9, 313–321.

Retrieved from https://encyclopedia.pub/entry/history/show/54709