Student Perspectives on Internet Use for Academic Achievement: A Survey at the University of the Punjab

Zohaib Hassan Sain¹, Shahzadi Hina Sain² and Razvan Serban³

¹Faculty of Business and Management Sciences, Superior University, Pakistan
²Department of Operations, Beaconhouse Head Office, Pakistan
³Universitatea Nationala de Stiinta si Tehnologie politechnic Bucuresti, Romania
E-mail: zohaib3746@gmail.com, shahzadi.hina88@gmail.com, serban.razvan.uso@gmail.com
(Received 5 March 2024; Revised 10 April 2024; Accepted 18 April 2024; Available online 25 April 2024)

Abstract - The Internet has emerged as a highly utilized instructional tool with vast potential. Students who use the Internet for educational purposes have the chance to broaden their understanding and enhance their overall academic achievement. This study explores students' perspectives on using the Internet to improve academic performance. A crosssectional survey questionnaire was sent to 360 students at the University of the Punjab, Lahore, to gather data. The acquired data were analyzed using descriptive statistics with the Statistical Package for Social Sciences. The findings revealed that an overwhelming majority (96.8%) of the students currently use the Internet, while a minority (3.2%) choose not to engage with it. The survey found that 66.79% of students use the Internet for both academic and non-academic purposes. Furthermore, the study emphasizes that many students firmly believe that extensive use of the Internet improves their academic achievements. These results highlight the need for authorities to allocate resources towards information technology, guaranteeing uninterrupted Internet connectivity for students to enhance their educational and research pursuits. Moreover, this study highlights prospective domains for future investigation, allowing academics to delve into and broaden the theoretical and empirical limits of students' views on Internet use.

Keywords: Academic Excellence, Cross-sectional Study, Education Tool, Internet Usage, Students' Attitudes

I. INTRODUCTION

The Internet is used as a substitute for conventional classroom lectures or as an additional component to existing teaching methods. It plays a significant role in enabling students to communicate across borders, facilitating the exchange of ideas, experiences, information, and cultures (Asokan et al., 2019). It enhances students' knowledge and promotes academic achievement, leading to successful career development. Besides, the Internet provides students with an opportunity to improve their Cumulative Grade Point Average (CGPA) (Soegoto & Tjokroadiponto, 2018).

In order to conduct thorough investigations, university students must use scholarly and dependable resources for their assignments and research endeavors. It is important for students to be encouraged to use electronic libraries, online databases, electronic journals, and electronic books as valuable resources for their specific courses. According to studies by Badasyan & Silva (2018) and Sahin et al. (2010), these resources can be highly beneficial to students. It is also essential for both professors and students to have access to the Internet to facilitate teaching, research, and communication. Many students use the Internet extensively to enhance their academic performance, as per research conducted by Wolfson et al. (2017). However, studies have yet to be undertaken at the University of the Punjab, Lahore, to evaluate the students' perspectives on using the Internet to improve academic performance.

This research seeks to investigate students' views about using the Internet to achieve academic success based on the reasons presented. It examines university students' attitudes towards using the Internet to achieve academic success. Kononova and Chiang's study (2015) makes a substantial contribution to the literature on how university students use the Internet.

It provides a solid foundation for future studies on the link between Internet use and academic success at other universities around the world. The study's findings will aid in mitigating the existing limitations of Internet use, hence facilitating the provision of essential Internet services to university students (Al et al., 2020).

The paper's sections are structured in the following order. First, we thoroughly examined the relevant literature, specifically focusing on the work of Anderson in 2001. Then, we explained the approach used in the study and reported the findings and deliberations of this preliminary investigation (Morahan-Martin & Schumacher, 2000). After a thorough analysis, we have outlined the implications and restrictions of our study and proposed recommendations for future research efforts (Cooper, 2019).

II. SIGNIFICANCE OF THE STUDY

The importance of this research is in its investigation of students' perspectives on using the Internet to achieve academic success. This study aims to fill the current knowledge gap on how Internet use affects academic performance. It will analyze the perspectives and experiences of University of the Punjab, Lahore students.

The research results will provide crucial insights into the advantages and challenges associated with using the Internet for educational purposes. This will help educators and policymakers create effective plans and actions to maximize the utilization of Internet resources in academic environments. In conclusion, this study adds to the existing knowledge on Internet use among university students. It paves the way for further investigation into the relationship between Internet usage and academic performance in various educational settings.

III. RESEARCH OBJECTIVES

This study aims:

- 1. To investigate the perceived advantages of Internet use in improving academic achievement.
- 2. To investigate the determinants that impact students' perceptions of using the Internet to achieve academic success.
- 3. To augment the current body of scholarship on Internet use among university students and enhance comprehension of its influence on academic achievement.
- 4. The aim is to provide valuable insights and suggestions to educators and policymakers on maximising the use of Internet resources in the academic environment.

IV. REVIEW OF LITERATURE

Internet use has become essential to both emerging and developed civilisations worldwide. The Internet is frequently used by about 90% of the population in the United States (Chen & Paul, 2003). The United States has over 330 million Internet users, placing it in the top 10 nations globally regarding Internet use. A staggering majority of college students in the United States, over 95%, regularly use the internet, which amounts to around 20 million individuals.

The internet has become an essential component of the lives of almost all college students. Most of them believe that it benefits their education, especially for tasks such as performing research and connecting with other students and faculty members (Cooper, 2002; Jones *et al.*, 2007). Nevertheless, a minority of college students encounter academic difficulties as a result of excessive utilisation of the Internet for non-academic activities (Anderson, 2001; Morahan-Martin & Schumacher, 2000; Kupczynski *et al.*, 2011; Castaño Muñoz, 2011).

The effects of technological improvements on education are diverse (Richardson, 2003; Pahl, 2003). Universities globally have been increasing their allocation of resources towards technology, namely the Internet, and actively advocating for its integration into higher education (Al-Nuaimy *et al.*, 2001; Rovai, 2001; Coppola *et al.*, 2002; Topper, 2002). Teachers have made their instructional materials and supplementary resources available online (Kinshuk, 2002; Huang *et al.*, 2004). Currently, students are

more motivated to engage in communication with professors via the medium of email. In order to understand students' perspectives on Internet use, academics must investigate their attitudes towards it, as encouraged by university officials (Chandler, 2002). Educators have been endeavouring to incorporate the Internet into the classroom and inspire pupils to use it for enhanced academic achievement (Morahan-Martin & Schumacher, 2000; Cooper, 2019).

The Internet allows professors to communicate course information to students creatively and effectively (Richardson, 2003). According to a study conducted by Kekkonen and Moneta in 2002, the researchers compared the learning outcomes of students in a traditional classroom setting with those in an online version of an introductory computing course. The study indicated that the students in both the lecture and online learning settings achieved similar factual learning results.

In addition, the study found that students who participated in online learning showed better performance in appliedconceptual learning than those who attended lectures. The results suggest that interactive learning modules that are well-designed have a significant positive impact on learning outcomes. Martin and Taylor (1997) predict that the virtual classroom will be the next big thing in educational technology.

Various organisational factors have been identified in the literature (Igbaria *et al.*, 1996; Suhail & Bargees, 2006; Coppola *et al.*, 2002) that can influence an individual's attitudes and perceptions. Organizational and Information Technology (IT) support are the two most significant factors (Igbaria *et al.*, 1997; Suhail & Bargees, 2006). To understand how Internet usage affects academic performance, it is important to consider how often and how extensively university students use the Internet (Anderson, 2001; Igbaria *et al.*, 1997; Kupczynski *et al.*, 2011).

Previous studies in Pakistan have indicated a significant positive correlation between Internet use and academic performance, especially in terms of grades, reading, writing, and information processing skills (Hossain & Rahman, 2017; Subrahmanyam *et al.*, 2006).

Computer resources, such as games, have been shown to benefit memory, spatial skills, and the development of auditory and visual capacities. This, in turn, promotes overall student growth and development (Lee, 2001; Subrahmanyam *et al.*, 2001).

Prior research has shown that students who engage in online information retrieval have higher academic scores due to their ability to access a broader range of material sources, resulting in a more comprehensive understanding of the subject matter (Cooper, 2002; Leung & Lee, 2012). In a study by Kupczynski *et al.*, (2011), the researchers aimed to comprehend the behaviour of students enrolled in Internet courses.

The findings revealed that students who engaged in online learning achieved higher educational accomplishments. Castaño's (2011) study examined the advantages of student contact for academic achievement. The study found that online learning students benefited more from student interaction than those attending in-person courses.

In a study by Roman (2003) at a Peruvian University, the impact of gender on Internet usage was examined. The findings revealed no significant disparity between males and females regarding the proportion of Internet usage. However, it was observed that their level of proficiency in using the Internet can affect their perception of its suitability.

In Pakistan, prior research has examined the present state of Internet connectivity, the challenges associated with using the Internet, and the potential for online commerce (Jamaludin *et al.*, 2018; Rahman, 2004). Pakistan has many obstacles to Internet use, including unreliable power supply, infrastructural issues, and expensive Internet access (Galavandi & Ahmadi, 2017; Sujatha, 2011). Only a few studies have examined students' views on using the Internet to achieve academic success. The research aimed to address the gaps noted in the literature by examining the students' views about using the Internet for academic success at the University of the Punjab, Lahore.

V. RESEARCH METHODOLOGY

A. Research Setting and Sample Choice

The study was conducted at the University of the Punjab in Lahore. This research used a purposive sampling strategy to choose a sample size of 360 respondents.

B. Questionnaire Formulation and Collecting Data

This study used a cross-sectional survey questionnaire approach for data collection. The questionnaire had two distinct sections, specifically Part A and Part B. Part A primarily concentrated on collecting demographic data, including gender, age, marital status, and educational attainment. Part B consisted of questions about using the Internet for academic achievement.

A 5-point Likert scale (strongly disagree to strongly agree) assessed opinions. Before gathering data, an expert researcher from the University of the Punjab checked the questionnaires to verify that the language used was suitable and the questions were straightforward.

The data gathered occurred three months from October to December 2023. The sample included students from various backgrounds at the University of the Punjab in Lahore. The necessary number of participants was chosen randomly and without any prejudice. The questions were disseminated using an online Google Form, while researchers directly administered them to the individuals.

The participants were notified of their prerogative to discontinue their involvement in the research at any given moment. Out of the 400 questionnaires distributed, 360 (90% response rate) were returned and considered valid for further analysis. Participation in this research was optional, and participants were not reimbursed.

C. Interpretation of the Data

The data were entered into IBM SPSS 28.0 for statistical analysis. Research findings were communicated using descriptive statistics.

VI. RESEARCH FINDINGS AND DISCUSSION

A. Characteristics of Respondents' Demographics

The demographic characteristics of the participants are presented in Table I. Based on the information presented in the table, it can be concluded that 66.67% of the participants were male, whilst 33.33% were female. 56.94% of the participants were between the ages of 26 and 30. Additionally, 95.83% were unmarried, and 58.33% were in Honors-level education.

TABLE I CHARACTERISTICS OF RESPONDENTS'
DEMOGRAPHICS

Category	Description	Frequency	Percentage
Gender	Male	240	66.67
Gender	Female	120	33.33
	21-25	130	36.11
Age (yrs.)	26-30	205	56.94
	31-35	25	6.95
Marital	Married	15	4.17
Status	Unmarried	345	95.83
	Honors	210	58.33
Educational	Masters	95	26.39
Level	MS/M/Phil	40	11.11
	PhD	15	4.17

B. Internet Usage Percentage among Students

Table II shows the percentage of students' use of the Internet. According to the table, 95.28% of students use the Internet while only 4.72% do not.

TABLE II INTERNET USAGE PERCENTAGE AMONG STUDENTS

Category	Frequency	Percentage
Yes	343	95.28
No	17	4.72

Zohaib Hassan Sain, Shahzadi Hina Sain and Razvan Serban

C. Students' Internet Usage Purposes

Table III illustrates the various objectives for which students utilize the Internet. The table reveals that most respondents use the Internet for multiple reasons, such as entertainment, recreation, communication, social networking, and academic research. However, it is noteworthy that 33.33% of the students exclusively employ the Internet for academic research.

TABLE III ST	TUDENTS'	INTERNET	USAGE	PURPOSES
--------------	----------	----------	-------	----------

Category	Frequency	Percentage
Entertainment	96	26.67
Recreation	49	13.61
Communication	50	13.89
Social Networking	45	12.5
Academic Research	120	33.33

D. Students' Views on Internet's Impact on Academic Performance

Table IV displays students' views on how Internet use affects academic performance. Most respondents (59.72%) believe using the Internet improves academic achievement. In contrast, 11.39% of the participants believe Internet use enhances academic achievement.

TABLE IV INTERNET USAGE ENHANCES ACADEMIC PERFORMANCE

Category	Frequency	Percentage
Strongly Disagree	6	1.66
Disagree	41	11.39
Neutral	38	10.56
Agree	215	59.72
Strongly Agree	60	16.67

E. Students' Views on Internet for Information Search and Studies

Table V presents the students' viewpoints about the significance of Internet use in knowledge retrieval and academic achievement. 70% of the participants believe using the Internet facilitates their information search and educational pursuits. Conversely, a mere 4.17% of the participants expressed disagreement with the idea that using the Internet helps in the search for knowledge and the practical completion of studies.

TABLE V STUDENTS' VIEWS ON INTERNET FOR INFORMATION SEARCH AND STUDIES

Category	Frequency	Percentage
Strongly Disagree	4	1.11
Disagree	15	4.17
Neutral	11	3.05
Agree	252	70
Strongly Agree	78	21.67

F. Students' Views on Internet Enhances Field-Specific Knowledge

Table VI displays the students' perspectives on the influence of Internet use on enhancing their knowledge in their specific areas of study. 72.22% of the respondents believe using the Internet improves their understanding of their study area. In contrast, a mere 3.06% of the participant's dissent that using the Internet leads to enhanced knowledge in their study area.

Category	Frequency	Percentage
Strongly Disagree	1	0.28
Disagree	11	3.06
Neutral	3	0.83
Agree	260	72.22
Strongly Agree	85	23.61

TABLE VI USING THE INTERNET ENHANCES INFORMATION IN THE ACADEMIC DISCIPLINE

G. Students'	Views on	Using the	Internet to	Engage in	Class
Discussions					

Table VII shows how Internet use impacts students' engagement in class discussions. 85.28% of the participants feel that using the Internet facilitates their participation in class-related conversations. Conversely, a mere 4.72% of the participants expressed disagreement with the idea that using the Internet facilitates their engagement in class-related discussions effortlessly.

Category	Frequency	Percentage
Strongly Disagree	2	0.56
Disagree	17	4.72
Neutral	8	2.22
Agree	307	85.28
Strongly Agree	26	7.22

TABLE VII STUDENTS' VIEWS ON USING THE INTERNET TO ENGAGE IN CLASS DISCUSSIONS

H. Students' Views on Using the Internet for Academic Motivation

Table VIII presents the students' perspectives on the influence of Internet use on enhancing their desire to finish their studies. Approximately three-quarters of the participants (74.44%) think using the Internet boosts their drive to finish their studies effectively. In contrast, a mere 2.78% of the participants have a different opinion about the idea that Internet use enhances motivation in this context. Furthermore, a notable 13.05% of the participants have yet to decide on whether the use of the Internet positively impacts their drive to complete their studies.

Category	Frequency	Percentage
Strongly Disagree	2	0.56
Disagree	10	2.78
Neutral	47	13.05
Agree	268	74.44
Strongly Agree	33	9.17

TABLE VIII UTILISING THE INTERNET ENHANCES MOTIVATION FOR ACADEMIC COMPLETION

VI. RESEARCH AND PRACTICAL IMPLICATIONS

This research enhances the current knowledge of students' perspectives about using the Internet to achieve academic achievement. This study highlights the significance of Internet usage among university students from a theoretical perspective. University students widely use the Internet to access relevant information and resources for their academic and research pursuits. Additionally, several university libraries provide digital journal databases, electronic books, and other scholarly materials that students can access online. Undoubtedly, the Internet is of utmost importance in students' lives.

Nevertheless, it is crucial to optimize the use of Internet time. The availability of Internet access would lead to increased Internet use by students for academic purposes. As a result, academics have shown a strong interest in examining students' internet use. Remarkably, there is a need for more research to explore the perspectives of students on using the Internet for academic success at the University of the Punjab in Lahore. Thus, this research investigates students' perspectives on Internet use for attaining academic success via applying descriptive statistics.

According to the research, there is a significant connection between students' academic achievement and their usage of the Internet. The study also provides suggestions for addressing current issues with Internet use and ensuring that all students have access to Internet services provided by the university administration. To achieve this goal, the report advises the University of the Punjab's administration to allocate more resources towards technological advancements that will enable them to offer efficient Internet services to all students. This will empower students to get the necessary material for their academic assignments and actively engage in class-related conversations. The results of the study may help formulate practical recommendations to improve internet usage amongst university students. The survey reveals that a substantial % of students, precisely 95.28%, at the University of the Punjab use the Internet, whilst just 4.72% abstain from using it. This implies that authorities should allocate more resources towards technology to augment the proportion of pupils using the Internet.

Moreover, the survey indicates that a substantial portion of participants (33.33%) use the Internet specifically for

scholarly investigations, underscoring its noteworthy influence on students' daily existence. Most respondents (59.72%) agree that Internet use improves academic achievement, highlighting the importance of students using the Internet to achieve educational greatness.

Moreover, a significant majority of respondents (70%) concur that the Internet facilitates effortless information retrieval and aids in completing their academic pursuits. Policymakers should ensure uninterrupted Internet access throughout the clock to promote students' information retrieval and completion of their studies.

Furthermore, a significant majority of respondents (72.22%) concur that using the Internet improves their understanding of their specific areas of study. It is important for students to utilize the Internet to a greater extent in order to improve their knowledge and understanding of various subjects.

The survey also indicates that most respondents (85.28%) agree that Internet use enables effortless engagement in class-related conversations. This demonstrates how the Internet enables remote education, allowing students worldwide to participate in virtual class discussions. Furthermore, most individuals (74.44%) concur that using the Internet enhances their desire to finish their studies successfully.

Teachers and legislators should promote the increased use of the Internet by students for academic reasons since it has the potential to strengthen their desire to study. Considering the comprehensive results of this research, it is strongly advised that all university students use the Internet to take advantage of its extensive academic benefits.

VII. RESEARCH LIMITATIONS

This study has a few limitations:

- 1. Firstly, the sample size is relatively small.
- 2. Secondly, the data is presented only through descriptive statistics.
- 3. Additionally, the number of female respondents is limited.
- 4. Moreover, the survey does not gather information about the students' prior experience with Internet usage.

VIII. RECOMMENDATIONS

Here are a few recommendations from this study:

A. Enhance Awareness and Knowledge

Develop and execute educational programs and efforts to instruct students on the advantages of using the Internet for academic pursuits, emphasizing the significance of responsible and focused online use. This may include conferences, seminars, and awareness campaigns to highlight the Internet's potential as a beneficial tool for achieving academic success. Zohaib Hassan Sain, Shahzadi Hina Sain and Razvan Serban

B. Improve Internet Infrastructure

Allocate resources to enhance the quality and availability of Internet facilities and connections at educational institutions. This ensures students have dependable and fast access to support their academic endeavours. Improvements may include upgrading network infrastructure, expanding capacity, and providing sufficient Wi-Fi coverage across the campus.

C. Create Digital Literacy Programs

Provide educational programs and seminars aimed at improving students' digital literacy competencies, empowering them to proficiently navigate online resources, critically assess material, and effectively use digital tools for scholarly research. These programs should educate students on locating reliable sources, evaluating online content for credibility, and using digital technologies to enhance academic productivity.

D. Encourage Effective Time Management

Offer assistance and tools to help students efficiently manage their online time, urging them to dedicate a substantial portion of their Internet use to academic activities while minimizing distractions. This may include promoting time management strategies, establishing objectives, and creating schedules that prioritize academic efforts.

E. Promote Collaboration and Peer Learning

Encourage students to participate in online collaboration platforms and virtual study groups, fostering the exchange of information, discussion, and peer support for academic pursuits. This may involve advocating for online forums, group study platforms, and virtual classrooms to cultivate collaboration and improve learning outcomes through peer interaction.

IX. CONCLUSION

Over the last several years, there has been a proliferation of Internet apps designed for many purposes, specifically emphasizing academic applications that enable remote education. University students globally rely heavily on the Internet to enhance their educational and research pursuits. According to this report, the University of the Punjab has a current Internet use rate of 95.28% among its students, highlighting the extensive appeal of the Internet as an educational tool. Furthermore, the survey reveals that a significant proportion of respondents (33.33%) use the Internet specifically for academic research. Students in many academic disciplines need to acknowledge and prioritize the allocation of their online time towards academic endeavours. Prior studies have shown that excessive non-academic Internet use might adversely affect students' academic performance. Hence, officials should

implement proactive strategies to improve Internet infrastructure at the University of the Punjab, given the study's discovery that a significant number of students see Internet use as having a beneficial impact on their academic achievements.

REFERENCES

- Asokan, A. G., Varghese, V. A., & Rajeev, A. (2019). Internet addiction among medical students and its impact on academic performance: An Indian study. *Journal of Medical Science and Clinical Research*, 7, 670–676.
- [2] Soegoto, E. S., & Tjokroadiponto, S. (2018). Effect of internet on student's academic performance and social life. *IOP Conference Series: Materials Science and Engineering*, 407, 012176.
- [3] Badasyan, N., & Silva, S. (2018). The impact of internet access at home and/or school on students' academic performance in urban areas in Brazil. *International Journal of Education Economics and Development*, 9, 149–171.
- [4] Sahin, Y. G., Balta, S., & Ercan, T. (2010). The use of Internet resources by university students during their course projects elicitation: A case study. *Turkish Online Journal of Educational Technology*, 9, 234–244.
- [5] Wolfson, T., Crowell, J., Reyes, C., & Bach, A. (2017). Emancipatory broadband adoption: Toward a critical theory of digital inequality in the Urban United States. *Communication, Culture & Critique, 10*, 441–459.
- [6] Kononova, A., & Chiang, Y. (2015). Why do we multitask with media? Predictors of media multitasking among Internet users in the United States and Taiwan. *Computers in Human Behavior*, 50, 31–41.
- [7] Jones, S., Johnson, C., Pérez, F., & Schuler, J. (2007). The Internet landscape in college. *Yearbook of the National Society for the Study* of Education, 106, 39–51.
- [8] Al Fariz, A., & Lestari, C. (2020). Does internet usage frequency give impact to student's academic performance? *Indonesian Journal of Educational Assessment*, 3, 16.
- [9] Anderson, K. J. (2001). Internet use among college students: An exploratory study. *Journal of American College Health*, 50, 21–26.
- [10] Morahan-Martin, J., & Schumacher, P. (2000). Incidence and correlates of pathological Internet use among college students. *Computers in Human Behavior*, 16, 13–29.
- [11] Cooper, L. F. (2019). Digital technology: Impact and opportunities in dental education. *Journal of Dental Education*, 83, 379–380.
- [12] Underwood, J. D. M. (2003). Student attitudes towards socially acceptable and unacceptable group working practices. *British Journal* of Psychology, 94, 319–337.
- [13] Taherdoost, H. (2017). Appraising the smart card technology adoption; case of application in university environment. *Procedia Engineering*, 181, 1049–1057.
- [14] Huang, W., Yen, D. C., Lin, Z. X., & Huang, J. H. (2004). How to compete in a global education market effectively? A conceptual framework for designing a next generation eEducation system. *Journal of Global Information Management*, 12, 84–107.
- [15] Chen, S. Y., & Paul, R. J. (2003). Editorial: Individual differences in web-based instruction—An overview. *British Journal of Educational Technology*, 34, 385–392.
- [16] Pahl, C. (2003). Managing evolution and change in web-based teaching and learning. *Computers & Education*, 40, 99–114.
- [17] Richardson, J. T. E. (2003). Approaches to studying and perceptions of academic quality in a short web-based course. *British Journal of Educational Technology*, 34, 433–442.
- [18] Bargeron, D., Grudin, J., Gupta, A., Sanocki, E., Li, F., & Leetiernan, S. (2002). Asynchronous collaboration around multimedia applied to on-demand education. *Journal of Management Information Systems*, 18, 117–145.
- [19] Chandler, B. (2002). Innovation in open and distance learning: Successful development of online and web-based learning. *Studies in Higher Education*, 27, 122–123.
- [20] Kinshuk. (2002). Web-based learning and teaching technologies: Opportunities and challenges. Online Information Review, 26, 61–62.

- [21] Al-Nuaimy, W., Zhang, J., & Noble, A. (2001). Web-based learning environment for a communications module. *Computer Applications* in Engineering Education, 9, 114–121.
- [22] Rovai, A. P. (2001). Building classroom community at a distance: A case study. *Educational Technology Research and Development*, 49, 33–48.
- [23] Owston, R. D. (2000). Evaluating web-based learning environments: Strategies and insights. *Cyberpsychology & Behavior*, 3, 79–87.
- [24] Dringus, L. P. (1999). Interview: Online with Dr. John A. Scigliano, Part 2. Internet and Higher Education, 2, 177–183.
- [25] Abu Karsh, S. M. (2018). New technology adoption by business faculty in teaching: Analysing faculty technology adoption patterns. *Education Journal*, 7, 5–15.
- [26] Barker, P. (2002). Innovation in open and distance learning: Successful development of online and web-based learning. *Innovations in Education and Training International*, 39, 82–85.
- [27] Coppola, N. W., Hiltz, S. R., & Rotter, N. G. (2002). Becoming a virtual professor: Pedagogical roles and asynchronous learning networks. *Journal of Management Information Systems*, 18, 169–189.
- [28] Topper, A. (2002). Web-based learning and teaching technologies: Opportunities and challenges. *Teachers College Record*, 104, 151– 154.
- [29] Lee, M. G. (2001). Profiling students' adaptation styles in web-based learning. *Computers & Education*, 36, 121–132.
- [30] Alavi, M. (1994). Computer-mediated collaborative learning: An empirical evaluation. *MIS Quarterly*, 5, 325–350.
- [31] Palloff, R. M., & Pratt, K. (1999). Building learning communities in cyberspace: Effective strategies for the online classroom. San Francisco, CA: Jossey-Bass Inc.
- [32] Carswell, L., Thomas, P., Petre, M., Price, B., & Richards, M. (2000). Distance education via the Internet: The student experience. *British Journal of Educational Technology*, 31, 29–46.
- [33] Kekkonen-Moneta, S., & Moneta, G. B. (2002). E-learning in Hong Kong: Comparing learning outcomes in online multimedia and lecture versions of an introductory computing course. *British Journal* of Educational Technology, 33, 423–433.
- [34] Martin, M., & Taylor, S. A. (1997). The virtual classroom: The next steps. *Educational Technology*, 37, 51–55.
- [35] Galavandi, H., & Ahmadi, F. (2017). Study of the role of individual, cultural, and organizational factors in acceptance of information technology among students of Urmia University. *Interdisciplinary Journal of Virtual Learning in Medical Sciences*, 8, e14950.

- [36] Igbaria, M., & Tan, M. (1997). The consequences of information technology acceptance on subsequent individual performance. *Information & Management*, 32, 113–121.
- [37] Igbaria, M., Parasuraman, S., & Baroudi, J. J. (1996). A motivational model of microcomputer usage. *Journal of Management Information Systems*, 13, 127–143.
- [38] Igbaria, M., Zinatelli, N., Cragg, P., & Cavaye, A. L. M. (1997). Personal computing acceptance factors in small firms: A structural equation model. *MIS Quarterly*, 21, 279–305.
- [39] Suhail, K., & Bargees, Z. (2006). Effects of excessive internet use on undergraduate students in Pakistan. *Cyberpsychology & Behavior*, 9, 297–307.
- [40] Subrahmanyam, K., Greenfield, P., Kraut, R., & Gross, E. (2001). The impact of computer use on children's and adolescents' development. *Journal of Applied Developmental Psychology*, 22, 7– 30.
- [41] Leung, L., & Lee, P. S. N. (2012). Impact of internet literacy, internet addiction symptoms, and internet activities on academic performance. *Social Science Computer Review*, 30, 403–418.
- [42] Kupczynski, L., Gibson, A. M., Ice, P., Richardson, J., & Challoo, L. (2011). The impact of frequency on achievement in online courses: A study from a south Texas University. *Journal of Interactive Online Learning*, 10, 141–149.
- [43] Castaño Muñoz, J. (2011). El uso de Internet para la interacción en el aprendizaje: Un análisis de la eficacia y la igualdad en el sistema universitario catalán. Barcelona: Universitat Oberta de Catalunya.
- [44] Roman, C. M. V. (2003). Gender differences in the patterns of Internet usage in a sample of library science students of Peruvian University. *Investigacion Bibliotecologica: Archivonomia, Bibliotecologia, e Informacion,* 17, 33–53.
- [45] Jamaludin, T. S. S., Kechik, N. A., Saidi, S., & Chan, C. M. (2018). Usage of internet for academic purposes on university students' achievement: A literature review. *Nursing and Health Care International Journal*, 2, 000135.
- [46] Rahman, M. A. (2004). Internet revolution in Bangladesh. The Bangladesh Observer, p. 14.
- [47] Hossain, A., Quaresma, R., & Rahman, H. (2019). Investigating factors influencing the physicians' adoption of electronic health record (EHR) in healthcare system of Bangladesh: An empirical study. *International Journal of Information Management*, 44, 76–87.
- [48] Sujatha, H. R. (2011). Analysis of Internet use in undergraduate colleges of Mangalore. DESIDOC Journal of Library and Information Technology, 31, 35–40.