

THE DRIVERS OF ENTREPRENEURIAL SUCCESS OF FREELANCERS: AN EMPIRICAL ANALYSIS

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Abstract

This study investigates how digital skills impact entrepreneurial outcomes among freelancers, providing insights crucial for enhancing economic growth in emerging economies. Central to this study is the role of technical skills, and combined abilities of communication and collaboration in shaping entrepreneurial success. Using a cross-sectional quantitative research design, data were collected from freelancers through an online survey distributed. Purposive sampling targeted individuals engaged in digital entrepreneurship. Statistical analysis confirmed that technical skills and communication & collaboration skills significantly influence digital skills, which, in turn, positively affect entrepreneurial success. Creativity and problem-solving abilities also showed a direct positive impact, while critical thinking did not yield a significant effect. Mediation analysis indicated that digital skills bridge the relationship between technical skills, communication, collaboration skills, and entrepreneurial success, with communication and collaboration skills demonstrating a stronger mediation effect. This study provides valuable insights for policymakers, educators, and digital economy stakeholders in developing training programs and support mechanisms to enhance digital capabilities. Future research could explore the impacts of a broader scope of digital skills, 21st-century competencies, and longitudinal impacts to refine these findings further.

INTRODUCTION

The freelancing system has been growing at a very fast pace in the global market over the years. The Payoneer's Freelancers Report (2022) indicated that the freelancing industry has expanded, especially in the current generation, thus emphasizing the importance of self-employed talent in the economy and business. It is now possible to talk about freelancers as important players in the modern economy as they can adapt to the new challenges in

the field of digital business (Freelancer Income Report, 2022). Pakistan has emerged as the fourth largest country according to its freelance workforce growth and utilization. This prominence is backed by a growing IT industry and the use of online platforms that help Pakistani freelancers access foreign markets, which in turn increases their business opportunities (Shahid, 2022; Van et al., 2014).

The current global economy is found to be dominated by what has recently been termed as digital entrepreneurship, and the individuals who play a significant role in propelling dynamics in the current global digital market are freelancers. This is according to the arguments made by van Laar, that individuals who are self-employed in contemporary society play an important role in the development of an economy through their talents that are useful in the twenty-first century (van Laar et al., 2020). In a Global Freelancers Report in 2022, it is found that there is an increased freelance force globally, and Digital Skills are core to running a business. Likewise, the freelance job market in Pakistan has observed a sharp increase with a robust information technology sector and prolonged online networking thus making the country the fourth best for freelancer development (Darmanto et al., 2022; Singh et al., 2024). This scenario also highlights the importance of technical skills, communication, collaboration, and critical as well as creative thinking being some of the competencies valuable in the work and operation in the digital space (van Laar et al., 2020).

The rapidly growing freelancing market around the world calls attention to the 21st-century skill set, which includes technical competencies, interpersonal and social skills, and information, media, technology, and thinking skills. Although a significant research effort in recent years has focused on digital skills, the knowledge gap relating to the effect of such skills on entrepreneurial success among freelancers is still sizable. Recent research has not explained in detail how various forms of digital competencies such as technical competency, interaction and collaboration, innovation, and problem-solving skills help in achieving entrepreneurial outcomes. Numerous works, including those (van et al., 2014; van laar et al., 2017; van laar et al., 2018; van laar et al., 2019; and van laar et al., 2020), have stressed the universality of digital competence. Besides, there is a moderate level of research available on the relationship between these skills and entrepreneurial success in the freelance sector even though the freelance sector is growing rapidly in emerging economies like Pakistan (Global Entrepreneurship Monitor, 2022).

The role of digital skills in determining the future of freelancing and stimulating entrepreneurial

initiatives has received considerable attention all over the world. Given that these competencies are becoming more important, ranging from technical skills to problem-solving skills, there is a loophole in the knowledge that exists about how these skills impact entrepreneurial outcomes among freelancers (van Laar et al., 2020). Freelancers are the driving force of digital business and entrepreneurship, while there are extensive reviews and investigations available in this regard, there is a scarcity of quantitative data that elaborates on the relationship between higher digital skills and better performance of freelancers especially in emerging economies like Pakistan which has ranked fourth in freelancer growth (Singh et al., 2024). This translates to a rising need for research on the impact of twenty-first-century skills such as technology, communication, collaboration, critical thinking, and innovation on the entrepreneurial performance of freelancers that is required for informing the design and implementation of education and policy solutions (van laar et al., 2020). To address these gaps in the literature, this research intends to establish the specific ways in which the mentioned digital skills in the proposition of the specific ways through which freelancers can enhance their entrepreneurial competency in the digital economy.

Research Objectives

Given the dynamism in Pakistan's economic environment, the following research objectives are set out in this study:

- To examine the effect of technical skills on the development of digital skills amongst freelancers in Pakistan.
- Investigate how communication and collaboration skills influence the acquisition of digital skills among freelancers in Pakistan.
- To determine a direct impact of how critical thinking skills affect the success of freelancers as entrepreneurs in Pakistan.
- Evaluate how creativity and problem-solving skills directly impact the entrepreneurial success of freelancers in Pakistan.
- To assess how digital skills acted as a mediator between the entrepreneurial success of freelancers and technical skills,

communication skills, and collaboration skills.

Significance of the study

We are particularly interested in these specific skills and how they influence the level of entrepreneurial success among freelancers. This focused investigation will improve the knowledge of how digital competencies are linked with business results and prospects in different areas such as Pakistan where the digital freelance market is growing fast (Van Laar et al., 2020; Global Entrepreneurship Monitor, 2022). There is also a deficiency of detailed research to provide evidence of a relationship between the efforts to acquire and assimilate these skills, with the levels of entrepreneurial success. This research aims to provide answers to these gaps by providing a clear definition of how specific digital skills enhance the entrepreneurial achievements of freelancers and contribute to the existing literature on the formation of efficient digital skills to support the economy (van Laar et al., 2020).

The findings of the study are useful for designing sector-specific educational and policy initiatives to help improve digital literacy and create a favorable environment for innovativeness. Thus, by anchoring the research in the Digital Competence Framework (DigComp), this study provides best practice suggestions for the incorporation of these skills into curricula and training opportunities, and thus, prepares freelancers for the landscape of the digital economy.

Moreover, the study fills the existing gap by providing a finer-grained analysis of how skills of the twenty-first century help in achieving success in entrepreneurial ventures, especially in emerging economies such as Pakistan. It remains vital to identify trends of such markets and the key issues of freelancers in these markets to design the strategies that would facilitate their development and stability. The findings of this study contribute to policymaking, influence educational changes, and help practitioners develop a strong freelance economy in Pakistan.

Literature review:

The increased adoption of digital technology has led to the common usage of terminologies that include

information technology, information and communication technology, and computer proficiency. Technological innovation plays a crucial role in determining the talents that have been identified as essential. These ideas typically combine the particular knowledge perspective (competence, literacy, or abilities) with a domain component (like computer, ICT, internet, or multimedia) (Hatlevik, Ottestad, & Throndsen, 2015).

Entrepreneurial success, as the subject of concern for this study, can be interconnected with freelancers' digital competencies in a nuanced way by positing the following hypothesis that takes into consideration the dynamics of the digital age. Thus, the hypothesis under consideration states that the level of business development, revolutionary changes, and financial stability of freelancers will be dependent on their digital competence. This connection depicts a modern world of business that, for instance, differentiates an entrepreneur based on the ability to use technology as a tool to succeed. Thus, how these freelancers can harness the efficiencies of digital technologies, applications, and approaches determines the success of their enterprises in a world of growing digital interconnectivity. In today's marketplace, digital competencies help freelancers understand their marketing strategies, customers, products, and operations. Furthermore, these competencies enable new opportunities to be spotted in the digital economy, ensure higher growth rates of business models, and ensure the development of innovations through the use of digital technologies (Abaddi, S. 2023; Veronica and Morellato, 2013).

The freelancers who have specialized more in digital skills will be in a better position to gain from this transition because they can offer a good sample and type of services and products that are likely to fit the emerging digital consumption. It also enhances the freelancer's role as one of the main actors in the entrepreneurial landscape by boosting the economy and sustainability of the global digital economy (Sariwulan et al., 2020). It is also relevant regarding the sustainability of freelance businesses as digital competencies have been introduced into entrepreneurial actions. Sustainability has now moved towards being defined by several factors that are around the ability of an entrepreneur to integrate

new technologies and thereafter, deploy them in organizational settings. It emerges that technological competencies are positively correlated with innovation, and willingness to learn and adapt, all of which are valuable for the long-term sustainability of the business (Hussain, 2023). Technological knowledge impacts positively entrepreneurial success (Ardelean, 2021). Acquiring proficient information skills requires time (on the level two digital abilities), whereas more extensive utilization enables the acquisition of strategic skills necessary for specific goals, like enhanced knowledge (on the level three digital abilities). Extensive usage also enhances self-directed learning abilities (Ben Youssef et al., 2022).

Hypothesis

H1: Technical Skills have a positive impact on digital skills.

H2: Communication and collaboration skills have a positive impact on digital skills.

H3: Critical thinking has a positive impact on the entrepreneurial success of freelancers.

H4: Creativity & problem-solving ability have a positive impact on the entrepreneurial success of freelancers.

H5: Digital skills have a positive impact on the entrepreneurial success of freelancers.

H6: Digital skills act as a mediator between technical skills and the entrepreneurial success of freelancers.

H7: Digital skills act as a mediator between communication & collaboration skills and the entrepreneurial success of freelancers.

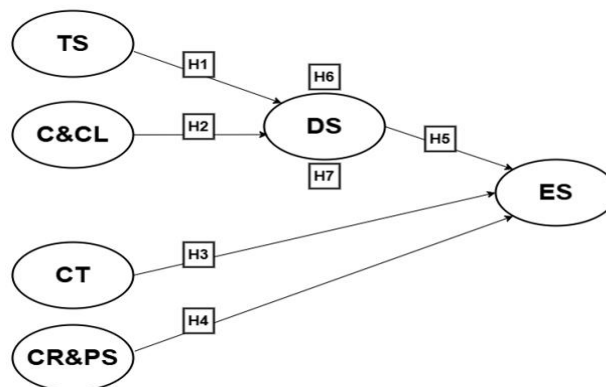
Conceptual constructed framework

The conceptual constructed framework of this investigation can be supported graphically inside Figure 1.

Table 1: Study Constructs

1. Sr.	2. Constructs	3. Abbreviations
4. 1	5. Freelancers Entrepreneurial Success	6. ES
7. 2	8. Digital Skills	9. DS
10. 3	11. Technical Skills	12. TS
13. 4	14. Communication & Collaboration skills	15. C&CL
16. 5	17. Critical Thinking	18. CT
19. 6	20. Creativity & Problem solving	21. CR&PS

Figure 1: Framework Diagram



Data and Methodology

An online survey was initiated through Google Forms and distributed through social media platforms such as WhatsApp group and Facebook using various groups of freelancers such as those in co-working spaces, agencies, self-employed freelancers, and university students who are freelancing or involved in digital entrepreneurship. Thus, the questionnaire was distributed and completed by 160 participants. The indicators of constructs were adopted from Ferrari (2012), Alexander et al. (2014), Van et al. (2016), Cambridge (2022), Kee et al., (2023), Aaron Hall (2023), Ali et al., (2019).

This study uses purposive (judgmental) sampling because it targets freelancers who have unique levels of technology adoption and relevant digital skills.

Using a cross-sectional quantitative research design, a purposively sampled structured questionnaire was administered to freelancers to explore various dimensions of digital skills and their relationship with entrepreneurial performance. By doing this, the method helps researchers to target respondents who possess certain characteristics, which is advantageous as it provides detailed information.

Data Analysis

The collected data were analyzed using the Partial Least Squares Structural Equation Modeling (PLS-SEM) method, which is a two-step process. Structural model is carried out for path analysis and hypothesis testing after analyzing measurement model to check data reliability and validity.

Table 2: Item Reliability, Internal Consistency Reliability, and Convergent Validity

22. Construct	23. Items	24. Outer Loadings	25. Cronbach's Alpha	26. Composite Reliability	27. Average Variance Extracted
28. Freelancers Entrepreneurial Success	29. ES1	36. 0.810	43. 0.929	44. 0.943	45. 0.701
	30. ES2	37. 0.808			
	31. ES3	38. 0.837			
	32. ES4	39. 0.875			
	33. ES5	40. 0.843			
	34. ES6	41. 0.852			
	35. ES7	42. 0.834			
46. Technical Skills	47. T1	52. 0.743	57. 0.897	58. 0.925	59. 0.713
	48. T2	53. 0.874			
	49. T3	54. 0.904			
	50. T4	55. 0.892			
	51. T5	56. 0.795			
60. Critical Thinking	61. CT4	64. 0.888	67. 0.878	68. 0.924	69. 0.803
	62. CT5	65. 0.903			
	63. CT6	66. 0.897			
70. Communication & Collaboration skills	71. C&CL1	77. 0.846	83. 0.920	89. 0.938	90. 0.715
	72. C&CL2	78. 0.877			
	73. C&CL4	79. 0.852			
	74. CL1	80. 0.834			
	75. CL3	81. 0.840			
	76. CL4	82. 0.822			
	77. CL5	83. 0.834			
91. Creativity & Problem solving	92. CR1	98. 0.835	104. 0.929	105. 0.945	106. 0.740
	93. CR2	99. 0.857			
	94. CR3	100. 0.863			
	95. PS1	101. 0.885			
	96. PS2	102. 0.876			
	97. PS3	103. 0.843			

107. Digital Skills	108. DS1	113. 0.798	118. 0.915	119. 0.937	120. 0.748
	109. DS2	114. 0.888			
	110. DS3	115. 0.890			
	111. DS4	116. 0.851			
	112. DS5	117. 0.893			

The outer loadings of items are in the range of 0.743 to 0.904, suggesting a substantial association with corresponding latent constructs. Cronbach's Alpha coefficients for all constructs in this study are above 0.70 and less than 0.95, which suggests a good level

of reliability. Furthermore, AVE values for each construct are deemed adequate as they are in a range of 0.701 to 0.803 which signifies that the constructs effectively account for a significant percentage of the variation seen in their corresponding items.

Table 3: Fornell-Larcker Criterion

	CR&PS	CT	DS	ES	T	C&CL
CR&PS	0.860					
CT	0.834	0.896				
DS	0.719	0.706	0.865			
ES	0.692	0.672	0.731	0.837		
T	0.686	0.671	0.653	0.598	0.844	
C&CL	0.829	0.794	0.673	0.620	0.787	0.845

To assess discriminant validity, the Fornell-Larcker criterion is used. The square root of AVE of every construct has a greater value than its correlations with other constructs

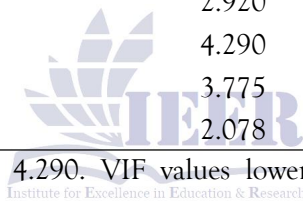
Table 4: Inner Variance Inflation Factor (VIF) Values

	CR&PS	CT	DS	ES	T	C&CL
C&SN				3.703		
CT				3.562		
DS				2.243		
ES						
T			2.631			
C&CL			2.631			

Table 5: Outer VIF Values

	VIF
C1	2.987
C2	3.390
C4	2.811
CL1	2.634
CL3	2.636
CL4	2.509
CR1	2.439
CR2	2.925
CR3	2.927
CT4	2.396
CT5	2.630

CT6	2.254
DS1	1.995
DS2	3.155
DS3	3.312
DS4	2.506
DS5	3.141
ES1	2.339
ES2	2.644
ES3	2.577
ES4	3.831
ES5	3.259
ES6	2.935
ES7	2.791
PS1	3.438
PS2	3.643
PS3	2.876
T1	1.604
T2	2.920
T3	4.290
T4	3.775
T5	2.078



VIF values are in the range of 1.604 to 4.290. VIF values lower than 5 indicate there is no problematic multicollinearity.

Table 6: Model Fit

	Saturated Model	Estimated Model
Standardized Root Mean Square Residual (SRMR)	0.056	0.068

The value of SRMR in Table 6 Is below the threshold of 0.080, which is acceptable for model fit.

Table 7: Coefficient of Determination (R-square) and Predictive Relevance (Q-square)

	R-square	R-Square Adjusted	Q-Square Predict
ES	0.598	0.590	0.407
DS	0.493	0.486	0.358

R-square ranges from 0 to 1, and is a measure of predictive accuracy (F. Hair Jr et al., 2014) R-square of 0.75, 0.50, and 0.2 is substantial, moderate, and weak, respectively. Q-square > 0 shows an adequate predictive relevance. ES and DS both have predictive relevance. ES have moderate predictive accuracy.

Table 8: Direct Effects

Hypothesis	Path	beta	std. dev.	T value	P value	f-square	Decision
H1	TS -> DS	0.325	0.338	2.609	0.005	0.079	Accepted
H2	C&CL -> DS	0.417	0.407	3.283	0.001	0.130	Accepted

H3	CT-> ES	0.157	0.160	1.501	0.067	0.017	Not Accepted
H4	CR&PS-> ES	0.329	0.235	1.929	0.027	0.038	Accepted
H5	DS-> ES	0.448	0.451	3.050	0.001	0.223	Accepted

H1, H2, H4, and H5 are statistically significant, meaning these paths have strong evidence of an effect. H3 is not significant (t = 1.501, p = 0.067). Furthermore, f-square of 0.02, 0.15, and 0.35 are termed as small, medium, and large respectively. H5 has the largest effect (f² = 0.223), indicating DS → ES is a strong predictor.

Table 9: Mediating Effects

121. Hypothesis	122. Path	123. beta	124. std. dev.	125. T value	126. P value	127. Decision
	129. TS ->					
128. H6	DS -> ES	130. 0.145	131. 0.005	132. 1.968	133. 0.025	134. Accepted
	136. C&CL ->					
135. H7	DS -> ES	137. 0.187	138. 0.000	139. 2.043	140. 0.021	141. Accepted

Both H6 and H7 are significant, meaning DS mediates the relationships. H7 (β=0.187) has a stronger mediation effect than H6 (β=0.145), suggesting that C&CL plays a slightly more influential role in improving ES via DS.

Conclusion and Recommendations

Having robust technical skills is important for freelancers as they want to be skilled and employ digital technology to execute their work. It consists of being efficient in the use of applicable software programs, coding languages, and other technical skills that are vital for his or her particular enterprises. Interpersonal skills are also crucial since freelancers work with various clients, stakeholders, and team members on different projects. Furthermore, freelancers must develop strong verbal and written communication and collaboration skills, which enable them to express their ideas, discuss the terms of cooperation, and cooperate effectively. The theory here, in accordance, is that such skills that may lead to increased customer satisfaction, positive word-of-mouth communication, and successful project performance, are the ones that will foster entrepreneurial success. In addition, the practical applicability of theoretical concepts that include the role of digital skills in this scenario is also crucial. Freelancers are aware of the self-promotion methods in the digital world and can manage all the aspects of their business, as well as learn about the trends and best practices in the industry. By leveraging digital

skills, freelance workers can increase their visibility, attract new clients, and work more efficiently.

These skills are essential as they directly impact the capabilities of freelancers to innovate, adapt, and achieve a cutthroat international market. Understanding the impact of those digital skills is essential for stakeholders and policymakers tasked with developing effective assist mechanisms and interventions. These programs’ goal is to enhance the capabilities of freelancers, which in turn can foster wider economic expansion and advancement. It adequately communicates the focal point of the research, which aligns with the idea explored and outlines how strategic programs can enhance abilities among freelancers.

Considering the cross-sectional methodology employed in the present study, we can’t accurately capture the shifting connection between digital skills and successful entrepreneurs over the years among freelancers. Further research should take into consideration longitudinal approaches for measuring the skill development and business outcomes of freelancers over time. In order to assess the impacts of a broader scope of digital skills in addition to these and additional 21st-century competencies like adaptability, leadership, judgment, time management, and coding and programming, future studies should take a more comprehensive approach. It should also consider how technical and soft skills, or the 21st century skills, influence the employability and effectiveness of the freelancers. Furthermore, evaluating such factors that include culture,

institutional guide, and industry might want to offer more detailed information regarding how digital talents and freelancers' nature contribute to entrepreneurial success in the digital age.

JEL Codes: C83, D83, L26, M13, O33, J24

REFERENCES

- Aaron Hall (2023). Essential Traits for Entrepreneurial success: Leadership, Risk-Taking, Innovation, Resilience, and Decision-Making: Innovative thinking: Available at: <https://aaronhall.com/insights/essential-traits-for-entrepreneurial-success-leadership-risk-taking-innovation-resilience-and-decision-making/> (accessed on April 25, 2024)
- Abaddi, S. (2023). Digital skills and entrepreneurial intentions for final-year undergraduates: Entrepreneurship education as a moderator and entrepreneurial alertness as a mediator. *Management & Sustainability: An Arab Review*. <https://doi.org/10.1108/MSAR-06-2023-0028>
- Ali, I., Ali, M., & Badghish, S. (2019). Symmetric and asymmetric modeling of the entrepreneurial ecosystem in developing entrepreneurial intentions among female university students in Saudi Arabia. *International Journal of Gender and Entrepreneurship*. <https://doi.org/10.1108/IJGE-02-2019-0039>
- Alexander, J.A.M (2014). Measuring Digital Skills from Digital Skills to Tangible Outcomes Project Report Retrieved from: Measuring-Digital-Skills (lse.ac.uk) Accessed at (5 Dec 2023).
- Ardelean, B. O. (2021). Role of technological knowledge and entrepreneurial orientation on Entrepreneurial success: A mediating role of psychological capital. *Frontiers in Psychology*, 12, 814733. <https://doi.org/10.3389/fpsyg.2021.814733>
- Ben Youssef, A., Dahmani, M., & Ragni, L. (2022). ICT Use, Digital Skills, and Students' Academic Performance: Exploring the Digital Divide. *Information* 2022, 13,129. <https://doi.org/10.3390/info13030129>
- The Cambridge life competencies framework, 2022: How do we make sense of digital literacy. Business Libretexts Available at <https://www.cambridge.org/elt/blog/2022/04/07/understanding-developing-digital-literacy/> (accessed on April 24, 2024).
- Darmanto, S., Darmawan, D., Ekopriyono, A., & Dhani, A. (2022). Development of digital entrepreneurial intention model in the Uncertain Era. *Uncertain Supply Chain Management*, 10(3), 1091-1102. <https://doi.org/10.5267/j.uscm.2022.7.050>
- Ferrari, A. (2012). Digital competence in practice: An analysis of frameworks (Vol. 10, p. 82116). Luxembourg: Publications Office of the European Union. <https://dx.doi.org/10.2791/82116>
- F. Hair Jr, J., Sarstedt, M., Hopkins, L., & G. Kuppelwieser, V. (2014). Partial least squares structural equation modeling (PLS-SEM) An emerging tool in business research. *European Business Review*, 26(2), 106-121. <https://doi.org/10.1108/EBR-10-2013-0128>
- Freelancer Report - Payoneer. <https://www.facebook.com/Payoneer>, <https://www.payoneer.com/resources/the-2023-freelancer-report-takeaways-for-small-businesses/>. Accessed 23 May 2024.
- Hatlevik, O. E., Ottestad, G., & Throndsen, I. (2015). Predictors of digital competence in 7th grade: A multilevel analysis. *Journal of Computer Assisted Learning*, 31(3), 220-231. <https://doi.org/10.1111/jcal.12065>
- Hussain, M., Rasool, S. F., Xuotong, W., Asghar, M. Z., & Alalshiekh, A. S. A. (2023). Investigating the nexus between critical success factors, supportive leadership, and Entrepreneurial success: evidence from the renewable energy projects. *Environmental Science and Pollution Research*, 30(17), 49255-49269. <https://doi.org/10.1007/s11356-023-25743-w>

- Kee, D. M. H., Anwar, A., Gwee, S. L., & Ijaz, M. F. (2023). Impact of acquisition of Digital skills on perceived employability of youth: Mediating role of course quality. *Information*, 14(1), 42. <https://doi.org/10.3390/info14010042>
- Press release opinion pool Global Entrepreneurship Monitor Business (2020) retrieved from Gallup Pakistan report.pdf Gallup Pakistan (2022) - Pakistan's Foremost Research Lab (accessed on May 20, 2024).
- Sariwulan, T., Suparno, S., Disman, D., Ahman, E., & Suwatno, S. (2020). Entrepreneurial performance: The role of literacy and skills. *The Journal of Asian Finance, Economics and Business*, 7(11), 269-280. <https://doi.org/10.13106/jafeb.2020.vol7.no11.269>
- Scuotto, V., & Morellato, M. (2013). Entrepreneurial knowledge and digital competence: Keys for the success of student Entrepreneurship. *Journal of the Knowledge Economy*, 4, 293-303. <https://doi.org/10.1007/s13132-013-0155-6>
- Shahid, M. (2022, July 3). "Professions That Are in Demand Globally. The Dawn: Pakistan Edition. Retrieved from <https://www.dawn.com/news/1697868> Professions that are in demand globally - Newspaper - DAWN.COM (Accessed on May 05, 2024).
- Singh, R., Kumar, V., Singh, S., Dwivedi, A., & Kumar, S. (2024). Measuring the impact of Digital Entrepreneurship training on entrepreneurial intention: the mediating role of entrepreneurial competencies. *Journal of Work-Applied Management*, 16(1), 142-163. <https://doi.org/10.1108/JWAM-11-2022-0076>
- Van Deursen, Alexander JAM, Cedric Courtois, and Jan AGM van Dijk. (2014). Internet skills, sources of support, and benefiting from Internet use. *International journal of human-computer interaction* 30 (4), 278-290. <https://doi.org/10.1080/10447318.2013.858458>
- van Deursen, A. J. A. M., Helsper, E., & Eynon, R. (2014). Measuring digital skills: From digital skills to tangible outcomes project report. University of Twente. http://www.oii.ox.ac.uk/publications/Measuring_Digital_Skills.pdf
- Van Deursen, A. J., & Van Dijk, J. A. (2014). Digital skills: Unlocking the information society. Springer. <https://doi.org/10.1057/9781137437037>
- Van Deursen, A. J. A. M., Helsper, E. J., & Eynon, R. (2016). Development and validation of the Internet Skills Scale (ISS). *Information, Communication & Society*, 19(6), 804-823. <https://doi.org/10.1080/1369118X.2015.1078834>
- Van Laar, E., Van Deursen, A. J., Van Dijk, J. A., & De Haan, J. (2017). The relation between 21st-century skills and Digital skills: A systematic literature review. *Computers in human behavior*, 72, 577-588. <https://doi.org/10.1016/j.chb.2017.03.010>
- Van Laar, E., van Deursen, A. J., van Dijk, J. A., & de Haan, J. (2018). 21st-century Digital skills instrument aimed at working professionals: Conceptual Development and empirical validation. *Telematics and informatics*, 35(8), 2184-2200. <https://doi.org/10.1016/j.tele.2018.08.006>
- Van Laar, E., van Deursen, A. J., van Dijk, J. A., & De Haan, J. (2019). Determinants of 21st-century Digital skills: A large-scale survey among working professionals. *Computers in human behavior*, 100, 93-104. <https://doi.org/10.1016/j.chb.2019.06.017>
- Van Laar, E., Van Deursen, A. J., Van Dijk, J. A., & De Haan, J. (2020). Determinants of 21st-century skills and 21st-century Digital skills for workers: A systematic literature review. *Sage Open*, 10(1). <https://doi.org/10.1177/2158244019900176>
- Van Laar, E., Van Deursen, A. J., Van Dijk, J. A., & De Haan, J. (2020). Measuring the levels of 21st-century Digital skills among professionals working within the creative industries: A performance-based approach. *Poetics*, 81, 101434.

<https://doi.org/10.1016/j.poetic.2020.101434>.

