Journal of Learning and Development Studies
ISSN: 2752-9541
DOI: 10.32996/jlds
Journal Homepage: www.al-kindipublisher.com/index.php/jlds

JLDS
AL-KINDI CENTER FOR RESEARCH AND DEVELOPMENT

| RESEARCH ARTICLE

Technological Readiness, Resilience, And Learning Performance of Vocational Students in A Public State University Amidst Class Disruptions

Marry Claire Declaro
Cebu Technological University
Corresponding Author: Marry Claire Declaro, **E-mail:** clairecentillas10@gmail.com

| ABSTRACT

Amid recurring class disruptions in higher education, this study examined the technological readiness, resilience, and learning performance of vocational students amidst class disruptions at Cebu Technological University – Main Campus. Specifically, it focused on Bachelor of Technical Vocational Teacher Education (BTVTEd) and Bachelor of Technology and Livelihood Education (BTLEd) students who experienced class disruptions caused by natural and environmental hazards. The study aimed to determine the levels of technological readiness and resilience of students and to analyze their relationship with learning performance during disruptive learning conditions. A descriptive-correlational research design was employed. Data were gathered using a researcher-developed questionnaire grounded on established theoretical and empirical studies on technological readiness, resilience, and academic performance. Statistical tools such as weighted mean and Pearson's correlation coefficient were utilized to describe the variables and examine their relationships. The findings revealed that students demonstrated a moderate to high level of technological readiness and resilience despite recurring class disruptions. Moreover, a significant positive relationship was found between technological readiness, resilience, and learning performance, indicating that students who were better prepared technologically and psychologically performed more effectively in their academic tasks. Based on the findings, an intervention plan was proposed to enhance students' technological readiness and resilience through capacity- building activities, flexible instructional strategies, and structured academic and psychosocial support. The study concludes that strengthening technological and resilience-related competencies is essential in sustaining learning performance of vocational students in disaster-prone learning environments.

| KEYWORDS

Technological readiness, resilience, learning performance, vocational students, disaster-prone environments

| ARTICLE INFORMATION

ACCEPTED: 11 March 2026 **PUBLISHED:** 15 April 2026 **DOI:** 10.32996/jlds.2026.6.6.1

Introduction

The importance of technology, flexibility, and learner-centered environments in influencing academic results has been highlighted more and more in the changing educational landscape (Mir, 2025). These components have grown even more significant in vocational education as organizations adapt to the demands of quickly modernizing industry and the ongoing difficulties brought on by unstable environments. Understanding how technological preparedness and resilience affect vocational students' learning performance has become a major focus of current study, especially in disaster-prone areas where educational continuity is regularly interrupted (Prokopoadou, 2025). Globally, vocational education requirements have changed to include a framework that recognizes the significance of students' technology proficiency (Huang, 2025). Moreover, people's readiness to utilize digital media is influenced by a variety of elements, including skills, competence, confidence, and a willingness to try new things (Scheel et al., 2022). When calamities necessitate the suspension of traditional face-to-face instruction, this readiness impacts the learners' capacity to engage in a digital or blended learning environment, necessitating

assistance (Co, 2026). Additionally, high levels of technological skill have been linked to improved academic achievement, increased engagement, and easier adaptation to distant learning methods (Lin et al., 2023)

Empirical studies show higher technological readiness is associated with greater online learning self-efficacy and better academic engagement, and that differences in readiness can widen learning gaps when instruction shifts to digital modalities. (Dimo et al., 2024). On the other hand, (Muñoz-Najar et al., 2021) underscored the centrality of resilience, the capacity of individuals and educational systems to anticipate, absorb, and adapt to disruptions for sustaining learning crises or disruptions. Large-scale reviews of remote learning responses emphasize that technological availability alone is insufficient without concurrent investments in resilience and support structures.

In disaster-affected areas like the Philippines, and more specifically, Cebu, the education sector is in a constant state of disruption where students are made to be adaptive and more importantly, have low access to technology. (Bagarinao, 2021) suggests a persistent need to combine disaster risk reduction with learning continuity strategies. Filipino student populations (including online learners) document elevated exposure to natural-hazard risks and identify gaps in institutional support and student preparedness that affect retention and performance during disruptions. In the case of vocational students, whose training relies in practice on physical interaction, the technological readiness and resilience are essential in sustaining the learning performance amidst out-of-school crises. This relationship provides information that can help institutions, such as the Cebu Technological University, in fortifying disaster resilient education policies and plans.

In this regard, recent contributions highlight the fact that technological readiness, or the effective use and integration of technology in learning, has been a key factor for educational continuity and success in times of crises by (Elhassan, 2025). Similarly, resilience, or the ability to adapt, cope, and bounce back from academic and environmental stressors, has been shown to be a significant motivational and learning force in ambiguous situations (Egan et al., 2024). This study is significant because technological readiness and resilience directly influence the learning performance of vocational students in disaster-prone environments. As digital tools become essential for instruction and skills training, students' ability to use technology and adapt to disruptions determines their academic continuity.

Understanding the interplay between technological readiness, resilience, and learning performance can inform the development of targeted strategies to strengthen instructional methods, support systems, and student engagement frameworks for vocational learners. This study highlights the critical connection between students' academic outcomes and their capacity to adapt to disaster- prone learning environments, emphasizing the importance of fostering both digital competence and personal resilience within vocational education. This study intends to investigate the impact of technological readiness and resilience on the learning performance of vocational students at CTU, considering both international and local contexts, statistical evidence of challenges faced by students in disaster-prone areas, and the identified research gap. The findings aim to contribute to scholarly discussions and provide guidance for developing effective strategies to enhance vocational education, not only within CTU but also more broadly across the Philippines, particularly in contexts vulnerable to natural hazards.

Literature Review

Recent studies show that technological readiness is a major factor in sustaining students' learning during class disruptions, especially when instruction shifts to online or blended modalities. In higher and professional education, students with stronger e-learning or digital learning readiness tend to report higher academic self-efficacy, motivation, engagement, and academic achievement, while low readiness is associated with more difficulty adapting to remote learning (El-Gazar et al., 2024), (Liu et al., 2025), (Nuwanthika & Thathsarani, 2025), (Wang et al., 2022). This pattern is highly relevant in vocational and skills-based education, where students' access to devices, connectivity, and digital literacy directly affects participation and outcomes. For instance, vocational students in China with weaker online learning access and readiness particularly those in rural areas showed lower engagement, satisfaction, and academic achievement than their urban counterparts (Hou et al., 2024). Similar findings were reported among nursing undergraduates, where overall online learning readiness remained low during disruption periods because of poor internet access, heavy workload, and limited interaction, indicating that technological readiness is shaped not only by individual competence but also by institutional support and learning conditions (Ilankoon & Seneviratne, 2025). In addition, students' engagement, communication, and overall online learning experience have been found to significantly relate to academic achievement during emergency distance learning (Omar et al., 2021).

Alongside technological readiness, resilience has emerged as a crucial factor in maintaining learning performance during educational disruptions. Research shows that students with stronger resilient coping skills experience lower stress during emergency online learning, even when they have limited prior experience with virtual education (Campbell et al., 2023). In disrupted health and medical education, higher resilience has been associated with less anxiety, insomnia, tiredness, and burnout, as well as better well-being and a more optimistic view of continuing one's studies under crisis conditions (Haskett et al., 2022), (Clark et al., 2023). Qualitative evidence from Southeast Asia also shows that students and faculty were able to

develop resilience despite adversity, but this depended greatly on flexibility, emotional support, and workable online arrangements (Kunaviktikul et al., 2022). In pharmacy education, students were found to have lower resilience than academic staff, while limited institutional mental-health support highlighted the need for deliberate resilience-building programs (Al-Haqan et al., 2025). Disaster-related evidence also supports this view, as students affected by the 2023 Turkey earthquake described resilience as dependent on coping strategies, academic adjustment, and support systems (Aykut, 2025). Taken together, the literature suggests that students' learning performance during class disruptions is influenced by both their capacity to use technology effectively and their ability to adapt psychologically and academically to unstable conditions.

Methodology

This study employed a descriptive-correlational research design to examine the relationship between technological readiness, resilience, and learning performance among vocational students in disaster-prone environments. The descriptive component provided a comprehensive assessment of students' levels of technological readiness and resilience, while the correlational aspect determined the extent to which these variables are associated with learning performance. The study was conducted at Cebu Technological University (CTU)–Main Campus, Cebu City, Philippines, involving third-year students enrolled in the Bachelor of Technical-Vocational Teacher Education (BTVTEd) and Bachelor of Technology and Livelihood Education (BTLEd) programs. Respondents were selected from both day and evening classes to ensure representation. The Input-Process-Output (IPO) model guided the study, where technological readiness and resilience served as inputs, students' adaptive learning behaviors as the process, and learning performance as the output. Data were collected using a structured questionnaire grounded in established theoretical frameworks, including Parasuraman's Technology Readiness Index (2000), Masten's Resilience Theory (2014), Piaget's Constructivist Learning Theory (1972), and Self-Regulated Learning Theory (Zimmerman, 2002; Schunk, 2003). The instrument consisted of four parts: demographic profile, technological readiness (optimism, innovativeness, discomfort, insecurity), resilience (self-regulation, adaptability, social support, coping), and learning performance (goal setting, engagement, academic achievement). The questionnaire ensured content validity and reliability through its theoretical grounding. Data were analyzed using descriptive statistics (mean and standard deviation) to determine levels of variables, and inferential statistics, particularly Pearson correlation, to examine relationships among variables. This approach enabled the identification of patterns that can inform interventions to enhance students' preparedness, resilience, and academic performance in disrupted learning environments.

Results

I. TABLE 1. PROFILE OF THE RESPONDENTS AS TO AGE AND GENDER

Age (in years)	Female (f)	Female (%)	Male (f)	Male (%)	Total (f)	Total (%)
26-30	1	1.33	1	1.33	2	2.67
21-25	26	34.67	13	17.33	39	52.00
18-20	30	40.00	4	5.33	34	45.33
Total	57	76.00	18	24.00	75	100.00

Table 1 shows that most student respondents were aged 21–25, comprising 52.00% of the total, followed by those aged 18–20 with 45.33%, while only 2.67% were aged 26–30. In terms of gender, female students dominated the sample with 76.00%, whereas male students accounted for 24.00%, indicating a predominantly female student population.

Table 2. Type of Device Used for Learning

Type of Device	f	Rank
Smartphone	73	1
Laptop	22	2
Cellphone	2	3
Tablet	1	4.5
Computer	1	4.5

Table 2 shows that smartphones were the most commonly used device for learning among student respondents, with 73 responses and ranked first. Laptops followed with 22 responses, while cellphone, tablet, and computer were least used. This indicates that smartphones were the primary learning tool of students, reflecting their accessibility, convenience, and importance in supporting academic activities.

Table 3. Internet Access

Frequency	f	Percentage (%)
Always	32	42.67
Often	24	32.00
Sometimes	19	25.33
Total	75	100.00

Table 3 shows that 42.67% of the student respondents always had internet access, 32.00% often had access, and 25.33% sometimes had access. This indicates that most students generally had stable internet connectivity for learning. However, the presence of students with only occasional access suggests that connectivity issues may still affect participation and continuity in academic activities.

Table 4. Residence

Residence	f	%
Urban	52	69.33
Rural	23	30.67
Total	75	100.00

Table 4 shows that most student respondents resided in urban areas, accounting for 69.33% of the total, while 30.67% lived in rural areas. This indicates that the majority of students were from urban locations, which may provide better access to educational resources and technology, while those in rural areas may experience limitations affecting their learning conditions.

Table 5. Level of Technological Readiness of the Respondents During Disruptions of Classes

S/N	Indicators	WM	SD	Verbal Description
1	I believe technology enhances my learning even during disasters.	3.84	0.90	High
2	I feel confident using digital tools for my coursework.	4.05	0.63	High
3	I am eager to try new learning applications or platforms.	4.39	0.73	Very High
4	I often explore online resources to improve my learning.	4.27	0.74	Very High
5	I can troubleshoot basic technical problems on my own.	3.60	0.94	High
6	I am comfortable attending online or blended classes.	4.15	0.80	High
7	I find it easy to learn new technologies related to my studies.	4.12	0.73	High
8	I feel anxious when using unfamiliar learning systems.	3.79	0.93	High
9	I worry about making mistakes when using educational technology.	3.81	1.02	High
10	I have access to a reliable device for academic activities.	3.84	0.84	High
11	I can easily access the internet even during typhoons or calamities.	2.40	1.12	Low
12	I can complete online learning activities independently.	3.84	0.90	High
13	I am motivated to use technology to enhance my academic performance.	4.12	0.72	High
14	I believe technology helps bridge learning gaps during disruptions.	3.98	0.80	High
15	I trust that online platforms can provide quality education.	3.78	0.82	High

Table 5 reveals that the student respondents generally possessed a high level of technological readiness during class disruptions. Most indicators were rated high, while two indicators being eager to try new learning applications or platforms (WM = 4.39) and exploring online resources to improve learning (WM = 4.27) were rated very high, showing strong openness and adaptability to technology. These findings suggest that students are confident and motivated in using digital tools for learning. However, the

most critical concern was internet access during typhoons or calamities, which obtained a low rating (WM = 2.40). This indicates that connectivity remains the greatest barrier to sustaining technology-supported learning during disruptions.

Table 6. Level of the Respondents' Resilience During Disruptions of Classes

S/N	Indicators	WM	SD	Verbal Description
1	I can adjust to new learning methods when classes are disrupted.	3.90	0.87	High
2	I can continue studying even with limited resources.	3.48	0.98	High
3	I stay positive despite learning difficulties caused by disasters.	3.97	0.84	High
4	I remain calm and focused during stressful situations.	3.76	0.91	High
5	I find ways to overcome obstacles in my study.	3.76	0.91	High
6	I can recover quickly from academic setbacks.	4.20	0.77	High
7	I ask for help from teachers or classmates when needed.	3.59	0.77	High
8	I find alternative ways to access learning materials during calamities.	4.08	0.88	High
9	I collaborate with classmates to complete tasks despite challenges.	3.88	0.85	High
10	I keep motivated even when faced with disruptions.	4.19	0.73	High
11	I plan ahead to ensure my studies are not affected by disasters.	4.19	0.73	High
12	I maintain a positive outlook toward my future despite disruptions.	3.83	0.72	High

Table 6 shows that the student respondents demonstrated a high level of resilience during disruptions of classes, as all indicators were rated high. The most critical findings were on recovering quickly from academic setbacks (WM = 4.20), keeping motivated despite disruptions (WM = 4.19), and planning ahead so studies are not affected by disasters (WM = 4.19). These results indicate that students possess strong adaptive and coping abilities in difficult situations. Moreover, finding alternative ways to access learning materials (WM = 4.08) further reflects their resilience. However, continuing to study with limited resources (WM = 3.48) received the lowest mean, showing a remaining challenge.

Table 7. Level of Students' Learning Performance During Disruptions of Classes

S/N	Indicators	WM	SD	Verbal Description
1	I am satisfied with my academic performance this semester.	3.47	0.81	High
2	I actively participate in online and classroom discussions.	3.78	0.77	High
3	I consistently submit my assignments and projects on time.	3.78	0.77	High
4	I can manage my study time effectively.	4.15	0.85	High
5	I perform well in both practical and theoretical subjects.	3.75	0.81	High
6	I can learn effectively even when the mode of instruction changes.	3.60	0.75	High
7	I understand lessons even when delivered online.	3.57	0.74	High
8	I can maintain focus while studying independently.	3.57	0.74	High
9	I apply what I learn in practical, real-world tasks.	3.78	0.84	High
10	I believe I am improving academically despite the challenges.	3.91	0.82	High

Table 7 indicates that the student respondents had a high level of learning performance during disruptions of classes, as all indicators were rated high. The most critical findings were effective study time management (WM = 4.15), academic improvement despite challenges (WM = 3.91), and active participation, timely submission of assignments, and application of learning in real-world tasks (WM = 3.78). These results suggest that students were able to sustain satisfactory academic functioning even during disruptions. However, understanding lessons delivered online (WM = 3.57) and maintaining focus while studying independently (WM = 3.57) received the lowest means, indicating areas that may still need support and improvement.

Table 8. Test of Relationship Between Technological Readiness and Learning Performance of the Respondents

Variables	r-value	Strength of Correlation	p-value	Decision	Remarks
Technological Readiness and Learning Performance	0.588	Moderate Positive	0.000	Reject Ho	Significant

Significant at p < 0.05 (two-tailed)

Table 8 shows that there is a moderate positive relationship between technological readiness and learning performance among student respondents (r = 0.588). The computed p-value of 0.000 is less than 0.05, leading to the rejection of the null hypothesis. This indicates that the relationship is statistically significant. The findings imply that higher technological readiness is associated with better learning performance during class disruptions.

Table 9. Test of Relationship Between Resilience and Learning Performance of the Respondents

Variables	r-value	Strength of Correlation	p-value	Decision	Remarks
Resilience and Learning Performance	0.702	Moderate Positive	0.000	Reject Ho	Significant

Significant at p < 0.05 (two-tailed)

Table 9 shows that there is a moderate positive relationship between resilience and learning performance among student respondents (r = 0.702). The computed p-value of 0.000 is less than 0.05, leading to the rejection of the null hypothesis. This indicates that the relationship is statistically significant. The findings imply that higher resilience is associated with better learning performance during class disruptions.

Discussion

The findings show that the student respondents maintained high technological readiness, high resilience, and high learning performance during class disruptions, suggesting that they were generally capable of adapting to altered learning conditions in disaster-prone settings. In terms of technological readiness, students were especially open to trying new learning applications and actively exploring online resources, which indicates a strong willingness to engage with digital learning tools. This suggests that students recognize technology as an important support for academic continuity. However, the low-rating for-internet access during typhoons or calamities highlights a major structural limitation. Even if students are personally ready and motivated to use technology, unstable connectivity can still restrict participation, access to materials, and continuity of learning. Thus, the findings imply that technological readiness alone is not enough unless it is matched with reliable infrastructure and institutional support.

The results also reveal that student respondents demonstrated high resilience, particularly in recovering from academic setbacks, remaining motivated, planning ahead, and finding alternative ways to access learning materials. These qualities appear to contribute to their high learning performance, as students reported effective time management, continued academic improvement, active participation, timely submission of tasks, and application of learning in practical contexts. More importantly, the significant relationships found in Tables 8 and 9 confirm that both technological readiness and resilience are positively associated with learning performance, with resilience showing a stronger relationship. This suggests that while the ability to use technology supports academic tasks, the capacity to cope, adapt, and persist during disruptions plays an even greater role in sustaining performance.

Conclusion

Based on the findings, third-year BTVTEd and BTLEd students at Cebu Technological University–Main Campus demonstrated high levels of technological readiness, resilience, and active engagement in learning despite class disruptions. The significant positive correlations among these variables confirm that students' participative, motivated, and adaptive behaviors contributed meaningfully to their learning performance. However, the results also indicate that learning outcomes can be further enhanced by external support with improved digital literacy, skills development, necessary technological resources, resilience-building, and sustained technical support. While students can adapt well to change, institutional intervention is still essential to the improvement of academic performance during learning environments that require disruptive learning conditions.

Funding: This research received no external funding.
Conflicts of Interest: The authors declare no conflict of interest.
Publisher's Note: All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers.

References

[1]. Al-Haqan, A., Bates, I. P., Almanasef, M., Bajis, D., & Alnahar, S. A. (2025). Assessing resilience in pharmacy education during the COVID-19 era. *Scientific Reports, 15*. https://doi.org/10.1038/s41598-025-98410-4

[2]. Aykut, N. (2025). Academic resilience of physical therapy and rehabilitation students after the earthquake in Turkey. *ELT Research Journal*. https://doi.org/10.71362/eltrj.1705735

[3]. Campbell, M., Maharaj, S., Khan, K., Sa, B., Adams, O. P., & Majumder, M. A. A. (2023). Resilient coping is more important than previous virtual learning experience: Predicting pharmacy student stress during the COVID-19 pandemic. *Advances in Medical Education and Practice, 14*, 443–451. https://doi.org/10.2147/AMEP.S402178

[4]. Clark, S. P., Loe, E., Merlo, L. J., & Estores, I. M. (2023). Assessing psychological resilience and distress among graduate health profession students during the COVID-19 pandemic. *Global Advances in Integrative Medicine and Health, 12*. https://doi.org/10.1177/27536130231185072

[5]. Co, S. J. (2026). Shifting to crisis-responsive blended learning: Secondary school students' experiences during environmental and social disruptions. *International Journal of Research, 15*(8), 39–49.

[6]. El-Gazar, H., Zoromba, M., Fayed, S. M., Loutfy, A., Elzieny, A. A., Elzeiny, A., Alkubati, S., Shahin, M. A. H., Altheeb, M., & El-Monshed, A. (2024). Nurturing success: E-learning readiness and academic self-efficacy in nursing students. *BMC Nursing, 23*. https://doi.org/10.1186/s12912-024-02125-2

[7]. Haskett, L. A., Doster, D. L., Athanasiadis, D., Anton, N., Huffman, E. K., Wallach, P., Walvoord, E., Stefanidis, D., Mitchell, S., & Lee, N. K. (2022). Resilience matters: Student perceptions of the impact of COVID-19 on medical education. *American Journal of Surgery, 224*, 358–362. https://doi.org/10.1016/j.amjsurg.2022.01.022

[8]. Hou, Y., Abdillah, M., & Royo, B. (2024). Accessibility and effectiveness of online learning in China's vocational education system: A comparative study between urban and rural areas. *Journal of Electrical Systems*. https://doi.org/10.52783/jes.3239

[9]. Huang, F. (2025). Exploring a new model of undergraduate vocational education. *Vocation, Technology & Education, 2*(1).

[10]. Ilankoon Mudiyanselage, P. S., & Seneviratne Mudiyanselage, K. S. (2025). Nursing undergraduates' use, readiness, barriers, and perceived effectiveness of online distance learning during COVID-19 in Sri Lanka: A cross-sectional study. *BMC Nursing, 24*. https://doi.org/10.1186/s12912-025-03583-y

[11]. Kunaviktikul, W., Ang, E., Baridwan, S., Bernal, A., Dones, L. B. P., Flores, J., Freedman-Doan, R., Klunklin, A., Lee, W., Lin, C., Luk, T. T., Nguyen, A. T. H., Nurumal, M. S., Setiawan, A., Jamaluddin, T. S. S., Huy, T. Q., Tungpunkom, P., Wati, D. N. K., Xu, X., & Shorey, S. (2022). Nursing students' and faculty members' experiences of online education during COVID-19 across Southeast Asia: A photovoice study. *Nurse Education Today, 111*, 105307. https://doi.org/10.1016/j.nedt.2022.105307

[12]. Lin, W., Zaman, S. I., Jamil, S., & Khan, S. A. (2023). Students engagement in distant learning: How much influence do the critical factors have for success in academic performance? *Psychology in the Schools, 60*(7), 2373–2394.

[13]. Liu, Y., Cheng, Z.-Y., Tao, J., Liang, Y.-Q., Zhang, Y., Wang, J., Dai, Z.-T., Yue, Y., Zhou, C.-R., Chen, L.-L., Xia, W.-T., & Su, D. (2025). The impact of digital health literacy on online learning engagement among undergraduate nursing students: The chain mediating roles of academic self-efficacy and future work self-salience. *BMC Nursing*. https://doi.org/10.1186/s12912-025-04235-x

[14]. Masten, A. S. (2014). *Ordinary magic: Resilience in development*. Guilford Press.

[15]. Mir, A. H. (2025). Learner-centered pedagogies: Transforming education for the 21st century. *Journal of Accounting Research, Utility Finance and Digital Assets, 3*(4), 383–387.

[16]. Nuwanthika, W. A. N., & Thathsarani, U. S. (2025). The impact of digital learning readiness on academic performance and student engagement in Sri Lanka. *Proceedings of the SLIIT International Conference on Advancements in Sciences and Humanities (SICASH)*. https://doi.org/10.54389/ccgn6841

[17]. Omar, H. A., Ali, E. M., & Belbase, S. (2021). Graduate students' experience and academic achievements with online learning during COVID-19 pandemic. *Sustainability, 13*(23), 13055. https://doi.org/10.3390/su132313055

[18]. Parasuraman, A. (2000). Technology readiness index (TRI): A multiple-item scale to measure readiness to embrace new technologies. *Journal of Service Research, 2*(4), 307–320. https://doi.org/10.1177/109467050024001

[19]. Piaget, J. (1972). *The psychology of the child*. Basic Books.

[20]. Prokopiadou, G. (2025). ICT contribution and outcomes in a crisis-hit school environment. In *Implementing information technology in learning processes: Achieving educational and school administrative goals during crises* (pp. 139–165). Springer Nature Switzerland.

[21]. Scheel, L., Vladova, G., & Ullrich, A. (2022). The influence of digital competences, self-organization, and independent learning abilities on students' acceptance of digital learning. *International Journal of Educational Technology in Higher Education, 19*(1), 44.

[22]. Schunk, D. H. (2003). Self-regulated learning: The educational legacy of Paul R. Pintrich. *Educational Psychologist, 38*(2), 133–139. https://doi.org/10.1207/S15326985EP3802_10

[23]. Wang, Y., Xia, M., Guo, W., Xu, F., & Zhao, Y. (2022). Academic performance under COVID-19: The role of online learning readiness and emotional competence. *Current Psychology*. https://doi.org/10.1007/s12144-022-02699-7

[24]. Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. *Theory Into Practice, 41*(2), 64–70. https://doi.org/10.1207/s15430421tip4102_2