



International Journal of Innovative Research in Science Engineering and Technology (IJIRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)



Impact Factor: 8.699

Volume 14, Issue 8, August 2025

Pedagogical Adaptation and Innovation in Social Studies, Community Collaboration, and Quality of Education in a VUCA World

Dr. Aldren B. Fuentes

Department of Education, Elementary School Teacher, Capiz, Philippines

ABSTRACT: In the modern educational landscape, the world is characterized by volatility, uncertainty, complexity, and ambiguity — collectively referred to as the VUCA world. This term describes the unpredictable and rapidly changing environment of global warfare and has since been applied to many areas, including education. This creates an urgent need for educational systems to adapt and innovate to better prepare students for the challenges of an uncertain future. This mixed method research aimed to determine the pedagogical adaptation and innovation in Social Studies, community collaboration, and the quality of education in a VUCA world for the 2024-2025 school year. The participants in the study were two hundred ten (210) randomly selected Junior High School Social Studies teachers. Data were collected using the researcher-made pedagogical adaptation and innovation in Social Studies questionnaire, community collaboration questionnaire, quality of education in a VUCA world questionnaire, and focus group discussion guide. The findings revealed that the overall level of pedagogical adaptation and innovation is very good. The level of community collaboration is very high. The quality of education in the VUCA world is very good. There is a significant difference in the quality of education in a VUCA world based on pedagogical adaptation and innovation. There is also a significant difference in the quality of education in a VUCA world based on community collaboration. A strong, positive, and significant relationship exists between pedagogical adaptation and innovation, community collaboration, and the quality of education in a VUCA world.

KEYWORDS: Pedagogical Adaptation, Innovation, Community Collaboration, Quality of Education, VUCA World.

I. INTRODUCTION

In today's rapidly evolving educational landscape, characterized by volatility, uncertainty, complexity, and ambiguity (the VUCA world), traditional methods of teaching, such as rote memorization and passive learning, are no longer sufficient. As the world shifts toward a technology-driven, knowledge-based economy, the need for educational systems to innovate and adapt is urgent. Pedagogical approaches must foster essential skills like critical thinking, problem-solving, adaptability, and collaboration to prepare students for an unpredictable future. Social Studies education, in particular, plays a crucial role in shaping students' understanding of global issues and historical contexts, and thus must evolve alongside changing demands. Innovative teaching methods, such as AI integration, differentiated instruction, and interactive learning, are essential for creating dynamic learning environments where students actively engage, collaborate, and develop critical competencies needed to thrive in a VUCA world [1], [2], and [3]. Moreover, community collaboration—encompassing the active involvement of parents, local organizations, and policymakers—has become an integral part of educational reform, ensuring that learning extends beyond the classroom and provides holistic support for students' growth [4] and [5].

The quality of education today must be measured not just by academic performance but by its ability to cultivate the skills necessary for navigating an ever-changing world. Education systems need to embrace lifelong learning, adaptability, and technological literacy to help students stay ahead of societal and technological advancements [6] and [7]. In this context, this study focuses on how pedagogical adaptation and innovation within Social Studies, coupled with community collaboration, can improve education quality in a VUCA world. Grounded in constructivist learning theories, which emphasize active, student-centered learning [8], the study explores how Social Studies can evolve to empower students to engage with real-world issues and develop critical thinking skills. By shifting toward more interactive, experiential methods, educators can help students not only absorb knowledge but also become equipped to solve complex global problems, ensuring they are prepared for the uncertainties of the future [9] and [20].

The purpose of the study was to determine the pedagogical adaptation and innovation in Social Studies, community collaboration, and quality of education in a VUCA world for the school year 2024-2025. Specifically, it sought to answer the following questions:

1. What is the level of pedagogical adaptation and innovation in Social Studies as an entire group and in terms of general adaptation strategies, AI integration, student engagement and feedback, assessment and evaluation, technological integration, innovative teaching strategies, student-centered learning, and classroom environment and culture?
2. What is the level of community collaboration as an entire group and in terms of collaboration between teachers, students, families, and the community, challenges and opportunities, the impact of community collaboration, and future directions of community collaboration in a VUCA world?
3. What is the level of quality of education in a VUCA world as an entire group and in terms of adaptability of the curriculum, emphasis on critical thinking and problem-solving, integration of technology and digital literacy, and focus on lifelong learning and continuous development?
4. Are there significant differences in the quality of education in a VUCA world based on pedagogical adaptation and innovation in Social Studies and community collaboration?
5. Are there significant relationships among pedagogical adaptation and innovation in Social Studies, community collaboration, and quality of education in a VUCA world?

II. RELATED LITERATURE

Pedagogical adaptation is crucial in modern education, particularly in diverse classrooms like Social Studies, where teachers must adjust methods, content, and environments to meet the unique needs of each student [11] and [12]. Differentiated instruction (DI) plays a key role in this adaptation by personalizing learning based on students' readiness, interests, and learning styles, promoting success through flexibility, individualization, and continuous assessment [1]. This approach fosters a supportive yet challenging environment, leading to improved student engagement, better academic outcomes, higher graduation rates, and stronger problem-solving and communication skills [3]. Additionally, strategies such as effective feedback, gamification, multimodal assessments, and innovative teaching methods further enhance student success [13].

In a rapidly evolving world, community collaboration plays a crucial role in transforming education by utilizing local knowledge and resources to address issues like educational inequity and social justice [14]. These partnerships help students connect their classroom learning to real-world issues, fostering civic responsibility and global citizenship [15]. The integration of technology further broadens the scope of community engagement, enabling global learning opportunities [16]. Looking to the future, the focus will be on fostering inclusive partnerships, especially with marginalized communities, and developing educational frameworks that prioritize these connections [17]. This approach will ensure that all students, particularly those from disadvantaged backgrounds, receive the necessary support to succeed academically and socially [18].

In response to the challenges of the VUCA (Volatility, Uncertainty, Complexity, and Ambiguity) world, traditional education models are being redefined to equip students with essential competencies beyond academic achievement [19] and [20]. As industries and global circumstances evolve rapidly, education must focus on developing skills like adaptability, creativity, critical thinking, and lifelong learning, which are necessary for navigating an unpredictable future [22] and [23]. The VUCA environment underscores the importance of flexible, responsive curricula that prioritize real-world application and foster problem-solving abilities [24] and [25]. Educational systems must embrace lifelong learning, adaptability, and innovation to ensure students remain competitive [7] and [26]. Ultimately, educators must create environments that encourage collaboration, creativity, and critical thinking, preparing students for the complexities and opportunities of an interconnected and volatile world [27] and [20].

III. METHODOLOGY

This research utilized a mixed-method design, targeting 210 Junior High School Social Studies teachers selected through stratified random sampling. The sample size was calculated using Slovin's formula. Data collection involved several instruments: a researcher-developed questionnaire on pedagogical adaptation and innovation in Social Studies, a community collaboration questionnaire, a quality of education in a VUCA world questionnaire, and a focus group

discussion guide. All instruments were validated and reviewed by an examination committee, with necessary revisions based on their feedback. After validation, pilot testing was performed to gather data for factor analysis, construct validation, and reliability testing, which were then analyzed using SPSS software. Pedagogical adaptation and innovation, as well as community collaboration, were treated as independent variables, while the quality of education in a VUCA world served as the dependent variable. Data analysis involved both descriptive statistics (frequency, mean, standard deviation) and inferential statistics (ANOVA, Pearson correlation coefficient), with a significance level set at 0.05.

IV. RESULTS AND DISCUSSION

A. Level of Pedagogical Adaptation and Innovation in Social Studies

Data show that the level of pedagogical adaptation and innovation are generally very good ($M = 4.56$, $SD = .41$). It also shows that the general adaptation strategies ($M = 4.75$, $SD = .37$), student engagement and feedback ($M = 4.68$, $SD = .41$), and assessment and evaluation ($M = 4.69$, $SD = .43$) are very good, while the AI integration ($M = 3.95$, $SD = .90$) is good. Moreover, the technological integration ($M = 4.46$, $SD = .58$), innovative teaching strategies ($M = 4.55$, $SD = .49$), student-centered learning ($M = 4.70$, $SD = .44$), and classroom environment and culture ($M = 4.71$, $SD = .43$) are very good.

Table 1: Mean and Standard Deviation of Pedagogical Adaptation and Innovation

Category	Mean	Description	SD
Pedagogical Adaptation and Innovation	4.56	Very Good	.41
General Adaptation Strategies	4.75	Very Good	.37
Student Engagement and Feedback	4.68	Very Good	.41
Assessment and Evaluation	4.69	Very Good	.43
AI Integration	3.95	Good	.90
Technological Integration	4.46	Very Good	.58
Innovative Teaching Strategies	4.55	Very Good	.49
Student-Centered Learning	4.70	Very Good	.44
Classroom Environment & Culture	4.71	Very Good	.43

Note Interval. 4.21 - 5.00 Very Good: 3.41 - 4.20 Good: 2.61 – 3.40 Moderate: 1.81 – 2.60 Poor: 1.00 – 1.80 Very Poor

The study revealed that most components of teaching practices were very good. Pedagogical adaptation and innovation were very good, as teachers consistently aligned their strategies with best practices, adapting lessons to meet diverse student needs and fostering positive learning outcomes through scaffolded techniques. Similarly, general adaptation strategies were very good, with teachers tailoring their methods to cater to various learning styles, abilities, and backgrounds, ensuring that all students could succeed. Student engagement and feedback were also rated very good, as students showed active involvement, receiving constructive feedback that encouraged self-reflection and progress. In terms of assessment and evaluation, the methods were very good, as they were aligned with learning objectives, offering meaningful insights into student progress and helping adjust teaching methods when necessary.

However, the study noted that AI integration was good, reflecting a limited but growing use of technology in the classroom, hindered by factors like access to resources and lack of training. Pedagogical innovation was very good, with teachers actively incorporating new methods, although some students struggled with technology-driven innovations due to access issues or learning preferences. Technological integration was very good, as teachers effectively used technology to enhance engagement and personalize learning, aligning with modern educational trends. Innovative teaching strategies were also very good, as teachers employed creative methods, such as real-world applications and multimedia tools, to foster critical thinking and deeper learning. Student-centered learning was rated very good, with teaching practices focusing on students' needs, promoting autonomy, motivation, and engagement. Finally, the classroom environment and culture were very good, creating a supportive, inclusive atmosphere that nurtured student confidence, motivation, and a positive learning experience. Overall, the study highlights the strong commitment of educators to adapt and innovate in response to evolving teaching demands.

B. Level of Community Collaboration

The result shows that generally, the level of community collaboration is very high ($M = 4.58$, $SD = .43$). Data show that the collaboration between teachers, students, families, and the community ($M = 4.52$, $SD = .61$), challenges and opportunities ($M = 4.51$, $SD = .49$), the impact of community collaboration ($M = 4.64$, $SD = .45$), and future directions of community collaboration in a VUCA world ($M = 4.66$, $SD = .45$) are very high.

Table 2: Mean and Standard Deviation of Community Collaboration

Category	Mean	Description	SD
Community Collaboration	4.58	Very High	.43
Collaboration between Teachers, Students, Families, and the Community	4.52	Very High	.61
Challenges and Opportunities	4.51	Very High	.49
Impact of Community Collaboration	4.64	Very High	.45
Future Directions of Community Collaboration	4.66	Very High	.45

Note Interval. 4.21 - 5.00 Very High: 3.41 - 4.20 High: 2.61 – 3.40 Moderate: 1.81 – 2.60 Low: 1.00 – 1.80 Very Low

Community collaboration is perceived as very high, with a strong and effective partnership between teachers, students, families, and the broader community. This collaboration plays a vital role in adapting educational practices to the ever-changing dynamics of the VUCA (volatile, uncertain, complex, and ambiguous) world. It ensures that the educational system can respond flexibly to emerging challenges and integrate new ideas, resources, and methodologies to better prepare students for the future.

The collaboration between teachers, students, families, and the community is highly valued, creating a supportive and adaptive learning environment. In the face of a VUCA world, this collaboration is essential for student success. It not only contributes to academic achievement but also fosters resilience and resourcefulness, enabling students to tackle challenges and thrive in an unpredictable educational landscape.

The challenges and opportunities of community collaboration are perceived as very high. While there are significant benefits to this collaboration, it also presents potential challenges that need to be managed effectively. These challenges include coordinating diverse stakeholders, addressing varying expectations, and navigating resource limitations. However, the opportunities for growth and improvement are equally significant. By fostering innovation, integrating new teaching tools, and utilizing local resources, collaboration can help create a more adaptable and resilient educational system. Managing these challenges while capitalizing on opportunities enables schools to stay responsive and better equipped to meet the demands of a VUCA world.

The impact of community collaboration is also perceived as very high, with its effects extending beyond academic achievement to include social and emotional development. The partnership between schools and the community strengthens relationships, improves access to resources, and provides holistic support to students. In a VUCA world, this collaboration is essential in creating a stable, adaptable educational environment. The positive impact of community collaboration enhances the overall learning experience and prepares students for future challenges by fostering a sense of shared purpose and mutual support.

The future directions of community collaboration are also seen as very high, with stakeholders acknowledging the need for constant evolution. As the educational landscape becomes increasingly volatile and uncertain, collaboration must adapt to stay effective. This requires a focus on agility, resilience, and innovation, ensuring that partnerships between schools, families, and the community remain relevant and sustainable. Future-proofing community collaboration enables it to remain a key tool in addressing the challenges of modern education and helps prepare students for the unpredictable future they will face.

C. Level of Quality of Education in a VUCA World

Data show that the level of quality of education in a VUCA world ($M = 4.34$, $SD = .44$) is very good. Data further show that the adaptability of the curriculum ($M = 4.58$, $SD = .46$), integration of technology and digital literacy ($M = 4.48$, $SD = .60$), and focus on lifelong learning and continuous development ($M = 4.64$, $SD = .46$) are very good while emphasis on critical thinking and problem-solving ($M = 3.69$, $SD = .39$) is good.

Table 3: Mean and Standard Deviation of Quality Education in a VUCA World

Category	Mean	Description	SD
Quality Education in a VUCA World	4.34	Very Good	.44
Adaptability of the Curriculum	4.58	Very Good	.46
Emphasis on Critical Thinking and Problem-Solving	3.69	Good	.39
Integration of Technology and Digital Literacy	4.48	Very Good	.60
Focus on Lifelong Learning and Continuous Development	4.64	Very Good	.46

Note Interval. 4.21 - 5.00 Very Good: 3.41 - 4.20 Good: 2.61 – 3.40 Moderate: 1.81 – 2.60 Poor: 1.00 – 1.80 Very Poor

The quality of education in a VUCA world is very good, with the system demonstrating flexibility to address emerging topics, integrate new technologies, and support evolving student needs. The curriculum adapts to rapid changes in knowledge, technology, and societal demands, preparing students to think critically, adapt, and engage in lifelong learning. Digital tools and online platforms are used to keep students connected and involved, helping them stay prepared for continuous learning beyond graduation.

The curriculum adaptability is very good, ensuring students are equipped with the skills necessary to thrive in an unpredictable world. This includes the integration of digital literacy, coding, and hybrid learning models to prepare students for future technological advancements. The emphasis on critical thinking and problem-solving is good, enabling students to adapt quickly to disruptions and approach real-world challenges strategically. Additionally, the strong focus on technology integration and digital literacy is very good, ensuring students are proficient in navigating an increasingly tech-driven world. The emphasis on lifelong learning and continuous development is very good, fostering resilience and adaptability, preparing students to continuously update their skills and knowledge to succeed in an ever-changing environment.

D. Differences in the Quality of Education in a VUCA World Based on Pedagogical Adaptation and Innovation in Social Studies and Community Collaboration

Data show that there is a significant difference in the quality of education in a VUCA world based on the pedagogical adaptation and innovation $F(94.465^*) = .000$, $p < .05$ in favor of very good pedagogical adaptation and innovation of JHS Social Studies teachers ($M = 4.75$, $SD = .23$). There is also a significant difference in the quality of education in a VUCA world based on the community collaboration $F(273.853^*) = .000$, $p < .05$ in favor of very good community collaboration of JHS Social Studies teachers ($M = 4.89$, $SD = .22$). Therefore, the null hypothesis which states that there is no significant difference in the quality of education in a VUCA world based on pedagogical adaptation and innovation and community collaboration is rejected.

Table 4: ANOVA on the Differences in the Quality of Education in a VUCA World Based on Pedagogical Adaptation and Innovation and Community Collaboration

Category	Sum of Squares	df	Mean Square	F	Sig.
Pedagogical Adaptation and Innovation					
Between Groups	16.780	2	8.390	94.465*	.000
Within Groups	18.385	207	.089		
Total	35.165	209			

Community Collaboration					
Between Groups	28.714	2	14.357	273.853*	.000
Within Groups	10.852	207	.052		
Total	39.567	209			

*p < .05 – significant at 5% level

There is a significant difference in the quality of education in a VUCA world based on pedagogical adaptation and innovation. Teachers who adapt their teaching methods and integrate innovative strategies achieve better educational outcomes, particularly in rapidly changing environments. This highlights the importance of using adaptive approaches to meet students' diverse needs and keep up with societal, technological, and global changes. Additionally, community collaboration plays a crucial role in enhancing education quality. Strong collaboration between teachers, students, families, and the community leads to better educational results by creating a supportive and responsive learning environment. This collective effort ensures that education remains relevant and effective in addressing the challenges and opportunities of a VUCA world.

E. Relationships Among Pedagogical Adaptation and Innovation, Community Collaboration, and Quality of Education in a VUCA World

Data reveal that there is a positive, strong association, and significant relationship between pedagogical adaptation and innovation $r = .757^*$, $p = .000 < .05$ and the quality of education in a VUCA world. There is also a positive, strong association, and significant relationship between community collaboration $r = .910^*$, $p = .000 < .05$ and the quality of education in a VUCA world. Moreover, there is a positive, strong association, and significant relationship between pedagogical adaptation and innovation $r = .754^*$, $p = .000 < .05$ and community collaboration. Therefore, the null hypothesis, which states that there are no significant relationships among pedagogical adaptation and innovation, community collaboration, and quality of education in a VUCA world, is rejected.

Table 5: Pearson r Among the Pedagogical Adaptation and Innovation, Community Collaboration, and Quality of Education in a VUCA World

Variables	r-value	Sig
Pedagogical Adaptation and Innovation and Quality of Education in a VUCA World	.757*	.000
Community Collaboration and Quality of Education in a VUCA World	.910*	.000
Pedagogical Adaptation and Innovation and Community Collaboration	.754*	.000

*p < .05 – significant at 5% level

The results indicate a positive, strong, and significant relationship between pedagogical adaptation and innovation and the quality of education in a VUCA world. This means that effective adaptation and innovation in teaching directly enhance the quality of education, especially in unpredictable and rapidly changing environments. Teachers' ability to adapt and innovate their methods plays a critical role in student success by preparing them with the skills needed to thrive in uncertain futures. Therefore, pedagogical flexibility and creativity are essential for fostering resilient learners.

Similarly, there is a positive, strong, and significant relationship between community collaboration and the quality of education in a VUCA world. Effective collaboration among teachers, students, families, and the broader community leads to better educational outcomes, underlining the importance of community involvement in education. Additionally, pedagogical adaptation and innovation are positively linked with community collaboration. As teachers innovate and adapt their practices, it fosters greater collaboration with the community, creating a cycle of mutual support and continuous improvement. This collaborative environment empowers teachers to experiment with new approaches, ensuring both pedagogy and community engagement evolve over time.

V. CONCLUSIONS

While teaching practices are generally very good, there is room for improvement by embracing more innovative and personalized methods. Enhancing engagement strategies, refining assessments, and integrating AI tools can create more supportive, responsive environments that better address diverse student needs. As AI continues to influence education and the workforce, integrating these technologies will ensure students develop the digital literacy and critical thinking skills necessary for the future. Moreover, deeper inclusion and engagement strategies will enhance learning outcomes for all students by expanding methods to address diverse learning needs and further exploring new technologies.

The very high level of community collaboration is a key strength, with excellent cooperation between teachers, students, families, and the broader community. This collaboration significantly impacts the quality of education and helps schools navigate the challenges of a VUCA world. Strong community ties create a supportive learning environment and foster a sense of shared responsibility, which is essential for student success. Sustaining and expanding these relationships ensures that students receive the necessary resources and guidance to thrive in both the present and future.

The quality of education is very good, with strengths in curriculum adaptability, critical thinking, problem-solving, and the integration of technology and digital literacy. These strengths prepare students for the challenges of a rapidly changing world. The focus on lifelong learning helps cultivate resilient learners who are equipped to adapt to future challenges. However, continued efforts are needed to refine educational practices, incorporate emerging trends, and address evolving student needs to maintain and enhance these qualities.

There is a clear distinction in the quality of education between schools with strong pedagogical adaptation and those with less effective teaching strategies. Teachers who excel in adapting and innovating their teaching methods contribute significantly to improving educational outcomes. Similarly, schools with strong community collaboration foster an integrated, supportive learning environment that is better equipped to meet students' needs, especially in a volatile world. Both factors are essential for enhancing education and preparing students for the uncertainties of the future.

The relationships between pedagogical adaptation, community collaboration, and quality of education are strong and positive. Teachers who excel in both adapting their teaching methods and fostering community ties significantly enhance educational outcomes. The interdependence of these factors emphasizes the importance of a holistic approach, where effective teaching practices and community engagement work together to create a more connected, resilient, and adaptable learning environment. This combination is key to preparing students for success in an ever-changing world.

REFERENCES

- [1] Chee, Y.S., Mehrotra, S., Ong, J.C., 2015. Professional development for scaling pedagogical innovation in the context of game-based learning: teacher identity as cornerstone in “shifting” practice. *Asia-Pac. J. Teach. Educ.* 43 (5), 423–437. <https://doi.org/10.1080/1359866X.2014.962484>.
- [2] Nichols, T.P., LeBlanc, R.J., Garcia, A., 2024. After digital literacy: Media pedagogies for platform ecologies. *World Yearbook of Education 2024*. Routledge, pp. 212–226.
- [3] Smith, E.E., Kahlke, R., Judd, T., 2020. Not just digital natives: integrating technologies in professional education contexts. *Australas. J. Educ. Technol.* 36 (3), 1–14.
- [4] Hausburg, T. (2020). School-Community Collaboration: An Approach for Integrating and Democratizing Knowledge. <https://urbanedjournal.gse.upenn.edu>.
- [5] Li, C., & Zhang, C. (2023). Transformative Perspectives in Physical Education Evaluation: Empowering Diverse Stakeholders for Holistic Learning Experiences in the Era of Big Data. *Journal of the Knowledge Economy*, 1-27.
- [6] Sabiri, H. (2024). Higher Education in a VUCA-Driven World: The Need for 21st Century Skills. <https://www.researchgate.net/publication/382024941>.
- [7] Kaustubhkalita (2024). The VUCA World: A Challenge and an Opportunity. https://medium.com/@kaustubhkalita_31668/the-vuca-world-a-challenge-and-an-opportunity-0b2f47cff85a.
- [8] Brau, B. (2024). Constructivism. <https://edtechbooks.org>.
- [9] Kinshuk, Chen, N.-S., Cheng, I.-L., Chew, S.W., 2016. Evolution is not enough: Revolutionizing current learning environments to smart learning environments. *Int. J. Artif. Intell. Educ.* 26, 561–581.

- [10] Statti, A., Torres, K.M., 2020. Digital literacy: The need for technology integration and its impact on learning and engagement in community school environments. *Peabody J. Educ.* 95 (1), 90–100. <https://doi.org/10.1080/0161956X.2019.1702426>.
- [11] Crawford, R., 2017. Rethinking teaching and learning pedagogy for education in the twenty-first century: blended learning in music education. *Music Educ. Res.* 19 (2), 195–213. <https://doi.org/10.1080/14613808.2016.1202223>.
- [12] Tan, O.S., 2015. Innovating teacher education in a complex era. *Educ. Res. Policy Pract.* 14 (3), 193–200. <https://doi.org/10.1007/s10671-015-9181-4>.
- [13] Southworth, J., Migliaccio, K., Glover, J., Glover, J., Reed, D., McCarty, C., Brendemuhl, J., Thomas, A., 2023. Developing a model for AI across the curriculum: transforming the higher education landscape via innovation in AI literacy. *Comput. Educ.: Artif. Intell.* 4, 100127 <https://doi.org/10.1016/j.caeai.2023.100127>.
- [14] Radd, S.I., Generett, G.G., Gooden, M.A., & Theoharis, G. (2021). Five practices for equity-focused school leadership. ASCD.
- [15] Cordova Jr, N., Kilag, O.K., Andrin, G., Tañiza, F.N., Groenewald, E., & Abella, J. (2024). Leadership Strategies for Numeracy Development in Educational Settings. *Excellencia: International Multi-Disciplinary Journal of Education* (2994-9521), 2(1), 58-68.
- [16] Grimus, M., 2020. Emerging technologies: impacting learning, pedagogy and curriculum development. *Emerg. Technol. Pedagog. Curric.* 127–151.
- [17] Apiku C, Asimwe S. Association of school, classroom environment factors and academic performance of girls in mathematics in public primary schools in Gombe District, Wakiso. *International Journal of Multidisciplinary Research and Growth Evaluation*; 2023;4(4).
- [18] Hameed, R. (2023). The Role of Parents in Education. How to Support Your Child's Learning At Home. *Harf-o-Sukhan*, 7(2), 227-241.
- [19] Mishra, L., Gupta, T., and Shree, A. (2020). Online teaching-learning in higher education during the lockdown period of the COVID-19 pandemic. *Int. J. Educ. Res.* 1:100012.
- [20] Govindarajan, V., and Srivastava, A. (2020). What the Shift to Virtual Learning Could Mean for the Future of Higher Education. *Harvard Business Review*. Retrieved on 22/12/2021 from <https://hbr.org/2020/03/what-the-shift-to-virtual-learning-could-mean-for-the-future-of-higher-ed>.
- [21] Hadar, L., Ergas, O., Alpert, B., Ariav, T. (2020). Rethinking teacher education in a VUCA world: Student teachers' social-emotional competencies during the COVID-19 crisis. *European Journal of Teacher Education*, 43, 573-586, doi:10.1080/02619768.2020.1807513.
- [22] Hadar, L., Ergas, O., Alpert, B., Ariav, T. (2020). Rethinking teacher education in a VUCA world: Student teachers' social-emotional competencies during the COVID-19 crisis. *European Journal of Teacher Education*, 43, 573-586, doi:10.1080/02619768.2020.1807513.
- [23] Kumar, P. (2024). The Importance of Lifelong Learning in a Rapidly Changing World. <https://www.linkedin.com/pulse/importance-lifelong-learning-rapidly-changing-world-pratyush-kumar-hosme>.
- [24] Brink, S.C., Carlsson, C.J., Enelund, M., Georgsson, F., Keller, E., Lyng, R., and McCartan, C. (2021). Curriculum Agility: Responsive Organization, Dynamic Content, and Flexible Education. In *IEEE Frontiers in Education Conference (FIE)*.
- [25] Rajeev, R. (2024). Why “Decision-Making Skills” Become Crucial and Necessary in the VUCA World? <https://www.rajeevelt.com/why-decision-making-skills-crucial-necessary-in-vuca-world/rajeev-ranjan/>.
- [26] Schilling, M. A. 2020. Strategic management of technological innovation. New York, NY: McGraw-Hill Education.
- [27] Pells, D. L. (2019). Six Fresh Eggs: A half dozen new ideas for managing projects in a rapidly changing VUCA world, *PM World Journal*, pp. 1-14.



INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

 9940 572 462  6381 907 438  ijirset@gmail.com



www.ijirset.com

Scan to save the contact details