

School Innovation Culture as Predictor of Teachers' Research Competence

Jia Duan *, Rodil F. Fadri

Graduate School, College of Education and Liberal Arts, Adamson University, Manila, CO 0900, Philippines

* Corresponding author: Jia Duan (Email: 1841796462@qq.com)

Abstract: The study assessed the school innovation culture and teachers' research competence in selected higher education institutions in Hunan, China. It assessed the culture of school innovation using the sub-variables strategy, support mechanism, structure, and creative behavior. To assess research competence, the study used the sub-variables research methodology, ethics, and utilization of research. The study also determined the predictive role of innovation culture on teachers' research competence. The study involved 305 teacher respondents selected randomly from a total population of 1460 teachers. The researcher developed the instrument used for data gathering. It was validated, pilot tested, and showed acceptable reliability results. The findings revealed a weak innovation culture in the schools investigated. The respondents assessed innovation culture as weak in all its sub-variables. It implies a lack of organized effort to foster an innovation culture in the investigated schools. The findings also showed poor research competence among the respondents. They have poor competence in research methodology, ethics, and utilization. Based on the results of the multiple linear regression analysis, the study concluded that school innovation culture has a predictive influence on teachers' research competence. This implies that a weak school innovation culture has a negative impact on the research competence of teachers. The study highlights the need to strengthen innovation culture to increase school research productivity.

Keywords: Research Competence; School Innovation Culture.

1. Introduction

China's development of world-class higher education institutions emphasizes the quality of research over quantity. In the past, Chinese colleges and universities focused solely on the number of research publications without considering their potential to solve crucial societal problems. To return to the original intention of research, the Chinese government implemented the 2020 policy reform. The 2020 reform emphasizes pursuing major original studies that can contribute to humanity and science [1]. China's Ministry of Education has also vowed to pursue basic research vigorously. The ministry will accelerate the improvement of organizational support to basic research [2]. It will promote basic researches that have strategic importance, frontier-oriented, and market-oriented. The policy direction is logical and practical, but it once more puts to light the readiness of Chinese faculty members to conduct research. Studies have shown that teachers lack research competence in some academic fields in China. For example, Gong et al. [3] reported that PE teachers lack collaborative research skills for outside partnerships. Wen [4] says Chinese language teachers have low research capacity. Furthermore, Feng et al [5] also reported low research capacities of rural Chinese teachers. Despite having several studies about Chinese teachers' research competence already, Han et al. [6] claim that there is still a need for exploration and measurement of research capability among university teachers.

The assessment of teacher research competence usually revolves around knowledge and skills related to the different stages in the research process. Gacrama and Baptista [7] used the parameters of conceptualizing the research problem, the research design, and scholarly writing. Marrs et al. [8] developed and validated a scale by reviewing the state of research, methodological skills, reflecting findings,

communication skills, and content knowledge as measures. The developed and validated scale of Swank and Lambie [9] is straightforward with the following sub-domains: research methodology, research ethics, and dissemination of research.

Assessing the research competence of teachers is the first step toward its enhancement. Assessments can reveal the strong and weak points of teachers' ability to do research, paving the way for an informed intervention. Improving teachers' research competence is important because it means better career growth. Guberman and McCloski [10] claim that research has become the main route for teachers' development. Research conducted by teachers also benefits the students. It also drives innovation [11], making professional learning activities related to research popular among teachers in different countries [12], [13]. Given the importance of research to the school, teachers, students, and the community, school leaders must exhaust every possible way to enhance it. Aside from the usual strategies like training, collaboration, and professional learning communities, school leaders must also look into the school's attributes that predict research competence. One of the possible school attributes that has the potential to predict teachers' research competence is innovation culture. So far, no study has determined the association between these two variables.

The idea of school innovation culture being a predictor of teachers' competence stems from the close association between the fundamental concepts of research and innovation. According to Gianni et al. [15], innovation is a process or a product often derived from research. Thus, research institutes enable innovations [15]. Innovation, however, is a much more significant concept when placed in the context of an educational organization. It becomes a deliberate, systematized, and planned [16] organizational adaptation of something new that improves current education practices and enhances student learning. It includes the teachers' adaptation

and updating of their instructional processes and materials [17].

School innovation is globally recognized as a key to educational advancement and reform [18]. It is at the heart of contemporary education [19]. It is the centerpiece through which school processes must revolve to produce a new educational approach [16]. According to the OECD [20], innovation is the cornerstone of quality outcomes improvement in all schools. A school innovation culture is vital for educational change [21]; thus, school innovation is becoming an international trend, with students' development becoming more dependent on its design and implementation [22]. For organizations to compete globally, innovation is necessary [23].

Innovation should be a collaboration between teachers and leaders [24]. Notably, there is an established link between leadership and innovative performance [25], and innovation in teaching is contingent on leadership behaviors [26]. When school leaders are rushing innovation, it puts pressure on teachers. This situation is evident in China, where higher educational institutions, vying for high global rankings, are into multiyear reforms again [27]. Teachers are pressured by high demands, few incentives, and competition in the workplace [28]. Moreover, Chinese teachers nowadays face stressors like family responsibility, task overload, dynamic pedagogy, curriculum reforms, and information explosion [29]. Given the top-down approach to reforms in Chinese schools and the challenges teachers face, it is essential to know the status of their innovation culture.

A strong innovation culture is necessary to sustain organizational innovativeness [30]. Therefore, it is logical to know the status of innovation culture first before designing innovation strategies. Recognizing this need, the researcher also delved into assessing the school innovation culture of selected higher education institutions in China. According to Fuad et al. [31], studies on school innovation culture remain scarce. Studies are still needed to establish an innovation culture from the perspective of educational institutions [32].

Moreover, assessing school innovation culture requires clear parameters because it is a contextualized concept considering social dynamics, diversity, institutional values, and the community [16]. School innovation culture has a broad extent but needs more operationalization [33]. According to Xie et al. [34], it is both an environment and a culture. It is also characterized by participation, growth, and enhancement in performance [35]. In developing a scale for school innovation culture, Fuad et al. [18] validated four components: strategy, support mechanism, structure, and innovative behavior.

The study assessed school innovation culture using a model with four factors: strategy, support mechanism, structure, and creative behavior. This model is based mainly on Fuad et al. [18] concept of innovation culture. As a component of school innovation culture, strategy points to the collaborative effort, which drives innovativeness, according to Owusu-Agyeman [36]. It also represents teamwork, which frequently appears in studies about innovation, such as those of Zhang et al. [37] and Soleas & Bolden [25]. On the other hand, the structure demonstrates the school's strategic priority in innovation. The third component, the support mechanism, centers on the material and human aspects of cultivating innovation. Providing proper sources for innovation will hasten its impact [38]. It will also motivate educators to innovate [25]. Lastly, creative behavior as a component of school innovation culture

demonstrates teachers' capability to find a novel way to do their work. Teachers will continuously look for innovative strategies to meet challenges, especially those related to students' academic progress [39].

The study also involved the assessment of research competence, which factors are research methodology, research ethics, and utilization of research. It based the research competence measure on the model Swank and Lambie [9] developed. Research methodology competence refers to the knowledge and skills of the entire inquiry process, from conceptualizing research problems, designing methodology, reviewing literature, data gathering and treatment, and reporting results. On the other hand, research ethics refers to the knowledge of standards in conducting studies and the ability to adhere to them. Lastly, the utilization of research deals with the scholarly writing skills of teachers and their capabilities to publish and present their research.

Research competencies are cognitive learnable abilities [40]. As posited by Vygotsky's Cognitive Development Theory, mental skills such as research competencies are socially guided and constructed. As such, culture has a role in forming and developing competencies such as research methodology, ethics, and utilization. School innovation culture may be a relevant influence on the teachers' research competence. A strong school innovation culture will engage teachers in research to generate new knowledge within the organizational limits, providing the school with internal information. Researchers can also collaborate with outside partners, opening the school to the inflow of external ideas and good practices. The school as an organization can foster an innovation culture according to the Open Innovation Theory developed by Henry Chesbrough in 2006. The theory posits that firms develop innovations through internal and external flows of ideas [41]. It shows that fostering an innovation culture is the duty of the organization. China also recognizes this notion [29].

2. Methodology

This study was conducted in the first semester of SY 2024-2025 at three selected colleges in Hunan, China. These middle-ranking schools provided a context that is most likely true for average higher education institutions in the area. The respondents were 300 teachers randomly selected from a population of 1460 teachers. The researcher gathered data through an online survey. The research instrument used was developed by the researcher and validated by experts. The instrument was pilot-tested and showed an acceptable level of reliability. Multiple linear regression analysis was used to test the hypothesis.

3. Results and Discussion

Table 1. School Innovation Culture

Domain	Mean	SD	Interpretation
Strategy	2.35	0.90	Weak Culture
Support Mechanism	2.35	0.90	Weak Culture
Structure	2.43	0.90	Weak Culture
Creative Behavior	2.36	0.89	Weak Culture
Overall	2.37	0.70	Weak Culture

Table 1 shows a weak overall innovation culture ($\bar{x}=2.37$). All its domains imply that the involved schools have a limited capacity for innovation. Strategy, which got a mean of 2.35, shows that the schools have poor collaboration for innovation.

Teachers' involvement in innovative activities is limited. The support mechanism for innovation is also weak ($\bar{x}=2.35$). The schools can only provide little support to the innovation needs of teachers and staff. In addition, the vision, goals, and policies for innovation are not formulated clearly, as shown in the weak culture in terms of structure ($\bar{x}=2.43$). The teachers' low creative behavior ($\bar{x}=2.36$) can be seen as a consequence of the school administrators' neglect of innovation. It is also possible that there is a lack of resources for innovation, given that the involved schools were public institutions in a less developed region.

The findings about innovation culture contradict many studies on teacher collaboration in China. De Jong et al. [42] revealed that collaboration in Chinese schools was evident through teacher communities. Hao [43] and Ao [44] also reported good levels of cooperation between Chinese teachers. The weak support mechanism for innovation differs from studies in Chinese schools. According to Lv et al. [45], Chinese schools fund innovative thinking and entrepreneurial ideas. There is a reward and recognition for Chinese teachers who work on curriculum innovations in public higher vocational education institutions [46]. In contrast to the current finding, Cheng et al. [47] reported that Chinese teachers are creative in problem-solving. Zhu et al. [48] and Li & Zhu [19] found that Chinese teachers practice innovative teaching and learning. In addition, Dongxiao et al. [49] found that Chinese teachers generate creative ideas and find solutions to problems using new techniques.

Table 2. Teachers' Research Competence

Domain	Mean	SD	Interpretation
Research Methodology	2.35	0.95	Poor Competence
Research Ethics	2.39	0.92	Poor Competence
Utilization of Research	2.32	0.93	Poor Competence
Overall	2.35	0.76	Poor Competence

Table 2 shows the overall teachers' research competence ($\bar{x}=2.43$) as poor. The low level of research competence is also evident in all the domains. The mean of 2.35 for research methodology indicates that the respondents have limited research capability. With poor competence in research ethics ($\bar{x}=2.39$), it can be said that the respondents have limited capacity to conduct studies within ethical standards. There is also a need for the respondents to improve their research utilization ($\bar{x}=2.32$). The poor competence of the respondents indicates low prioritization of research in the involved schools.

Table 3. Predictor Model

Domain	R ²	Beta	Sig
Strategy	0.554	0.256	.000
Support Mechanism		0.224	.000
Structure		0.170	.000
Creative Behavior		0.180	.000

The finding is partly similar to what Li and Xu [50] revealed in their study. Their study showed that Chinese EFL teachers have an unsatisfactory level of conducting research individually or collaboratively. Zhang & Wang [51] report that unethical research practices are prevalent in China. Research misconduct has led to the retraction of significant numbers of articles by Chinese researchers [52]. According to Zhang & Wang [51], pressure from schools to do research, the lax implementation of ethical standards, and tolerance among

fellow researchers are the primary reasons for unethical practices.

Table 3 shows the multiple regression model featuring all the domains of innovation culture as predictors of research competence. This means that the combination of the four domains significantly influences the respondents' ability to do research. This is evidenced by the p values (sig), which are all .000. With an R² of 0.554, the model explains 55.4% of the variance of research competence. A unit change in strategy can result in a 0.256 change in research competence (Beta = 0.256), while a support mechanism can lead to a change of 0.224 (Beta = 0.244). Likewise, a unit variation in creative behavior can result in a shift in research competence. With a Beta of 0.180, creative behavior can predict a factor change of 0.180 on research competence. The least predictive power belongs to the domain structure, whose beta is 0.170. A unit structure change can result in a 0.170 change in research competence. Given the predictive influence of innovation culture, improving it can also translate to research competence enhancement.

The finding is partly similar to the study of Obliopas and Borines [53]. Their investigation showed that working conditions predict the research competence of Filipino secondary teachers. Innovation culture can be a part of the teachers' working conditions. The presence or absence of support mechanisms can also influence the teachers' research activities.

4. Conclusion

The study highlighted the need to improve the innovation culture of the selected schools. It also showed the need to enhance the teachers' research competence. The weak school innovation culture and the poor teachers' research competence are not a mere coincidence. The study showed that innovation culture has a predictive influence on teachers' research capabilities. The teachers' research competencies were likely constrained by the weak innovation culture in the schools. With low collaboration among stakeholders, limited support mechanisms, and a weak structure for innovation, teachers will not be motivated to do research. Their skills will stagnate or even decline. The school must also improve its innovation culture for the sustainable development of research competence.

References

- [1] Zhu, J. (2020). Evaluation of Scientific and Technological Research in China's Colleges: A Review of Policy Reforms, 2000–2020. *ECNU Review of Education*, 3(3), 556–561. <https://doi.org/10.1177/2096531120938383>.
- [2] Global Times (2023, July 12). China's Education Ministry to promote basic research, homegrown innovation to help address "bottleneck" tech issues. <https://www.globaltimes.cn/page/202307/1294216.shtml>.
- [3] Gong, Y., MacPhail, A., & Young, A. (2021). Chinese higher education-based physical education teacher educators' professional learning needs for involvement in research activities. *Professional Development in Education*, 1–17. <https://doi.org/10.1080/19415257.2021.1895286>.
- [4] Wen, Q. (2020). Accelerating the internationalization of Chinese-applied linguistic theories: Reflections and suggestions. *Modern Foreign Languages (Bimonthly)*, 43 (5) (2020), pp. 585–592.

- [5] Feng, L., Yuxiang, Q., & Lihua, Q. (2023). The structure and evaluation of educational research skills and accomplishments among rural teachers: data from China. *Frontiers Psychology*. Vol.14-2023.
- [6] Han, X., Dou, W., Hu, Q. et al. (2024). Research Capability of Chinese Scholars: Structural Exploration and Validation of a New Scale. *Asia-Pacific Edu Res* (2024). <https://doi.org/10.1007/s40299-024-00847-0>.
- [7] Gacrama, B. I. & Baptista, G. O. (2019). Research Competencies of Undergraduate Faculty in a Private University in Northern Philippines. *Sallestinins Open Academic Review*, 1(1).
- [8] Marrs SA, Quesada-Pallarès C, Nicolai KD, Severson-Irby EA and Martínez-Fernández JR (2022) Measuring Perceived Research Competence of Junior Researchers. *Front. Psychol.* 13:834843. doi: 10.3389/fpsyg.2022.834843.
- [9] Swank, J. M., & Lambie, G. W. (2016). Development of the Research Competencies Scale. *Measurement and Evaluation in Counseling and Development*, 49(2), 91–108. <https://doi.org/10.1177/0748175615625749>.
- [10] Guberman, A. and Mcdossi, O., 2019. Israeli teacher educators' perceptions of their professional development paths in teaching, research, and institutional leadership. *European Journal of Teacher Education*, 42 (4), 507–522. doi:10.1080/ 02619768.2019.1628210.
- [11] Rosowsky, D. (2022). The role of research at universities: why it matters. *Forbes*. March 2, 2022. www.forbes.com.
- [12] MacPhail, A., et al. 2019. The professional development of higher education-based teacher educators: needs and realities. *Professional Development in Education*, 45 (5), 848–861. doi:10.1080/19415257.2018.1529610.
- [13] Maaranen, K., et al. 2020. 'Do you mean besides researching and studying?' Finnish teacher educators' views on their professional development. *Professional Development in Education*, 46 (1), 35–48. doi:10.1080/ 19415257. 2018. 1555 184.
- [14] Gianni, R., Pearson, J. & Reber, B. (2019). *Responsible research and innovation from concepts to practices*. Routledge. New York.
- [15] Arundel, A., Wunsch-Vincent, S. & Athreye, S. (2021). *Harnessing Public Research for Innovation in the 21st Century: An International Assessment of Knowledge Transfer Policies*. (2021). United Kingdom: Cambridge University Press.
- [16] Parejo José-Luis, Revuelta-Domínguez Francisco-Ignacio, Guerra-Antequera Jorge, Ocaña-Fernández, Almudena. (2022). An analysis of educational innovation culture by a Delphi expert panel. *Frontiers in Education*. V.7. DOI= 10.3389/feduc.2022.991263.
- [17] Sancho, J. M. (2018). Innovación y enseñanza. De la “moda” de innovar a la transformación de la práctica docente. *Educação* 41, 12–20. doi: 10.15448/1981-2582.2018.1.29523.
- [18] Fuad, D., Musa, K. & Kahlid, H. (2023). Factor analysis on the school innovation culture scale in the Malaysian context. *International Journal of Academic Research in Business & Social Sciences*. Vol 13, (9).
- [19] Li K, Zhu G. (2022). Promoting Teaching Innovation of Chinese Public Schools teachers by team temporal leadership: The mediation of job autonomy and the moderation of work stress. *PLoS One*. 2022 Jul 8;17(7):e0271195. doi: 10.1371/journal.pone.0271195. PMID: 35802741; PMCID: PMC9269 914.
- [20] OECD (2019). *Measuring Innovation in Education Paris: Educational Research and Innovation*. Paris: OECD Publishing.
- [21] Caliskan, A., & Zhu, C. (2019). Organizational culture type in Turkish universities using OCAI: Perceptions of students. *Journal of Education Culture and Society*, 10(2), 270-292.
- [22] Vincent-Lancrin, S. (ed.) (2023), *Measuring Innovation in Education 2023: Tools and Methods for Data-Driven Action and Improvement*, Educational Research and Innovation, OECD Publishing, Paris, <https://doi.org/10.1787/a7167546-en>.
- [23] Kremer H, Villamor I and Aguinis H (2018) Innovation leadership: best-practice recommendations for promoting employee creativity, voice, and knowledge sharing. *Business Horizons*. 1527: 1–10.
- [24] Nguyen D, Pietsch M, Gümüş S. (2021). Collective teacher innovativeness in 48 countries: Effects of teacher autonomy, collaborative culture, and professional learning. *Teaching and Teacher Education*. 2021;106:103463.
- [25] Soleas, E., & Bolden, B. (2020). What Helped Me Innovate: Identified Motivation Factors from Canadian Innovators' Education Experiences. *Canadian Journal of Education*, 43(3). <https://doi.org/10.1097/NAQ.0000000000000412>.
- [26] Keane T, Boden M, Chalmers C, Williams M. Effective principal leadership influencing technology innovation in the classroom. *Education and Information Technologies*. 2020;25 (6): 5321–38.
- [27] Bowen, W., Xueyang, H. & Xintong, W. (2023). How China's shrinking the population is driving education reform. *Nikkei Asia*. April 7, 2023.
- [28] Xu L, Guo J, Zheng L, Zhang Q. (2023). Teacher Well-being in Chinese Universities: Examining the relationship between challenge-hindrance stressors, job Satisfaction, and teaching engagement. *Int J Environ Res Public Health*.
- [29] Cai Y, Tang R. (2021). School support for teacher innovation: Mediating effects of teacher self-efficacy and moderating effects of trust. *Thinking Skills and Creativity*. 2021;41:100854.
- [30] Danks S, Rao J and Allen J (2017) Measuring culture of innovation: a validation study of the Innovation Quotient instrument (part one). *Performance Improvement Quarterly* 29: 427–454.
- [31] Fuad, D., Musa, K. & Hashim, Z. (2020). Innovation culture in education: a systematic review of the literature. *Management in Education*. 36 (1).
- [32] Leron, Paul Jersey & Bacongus, Rowena. (2021). Exploring the Dimensions of Innovation Culture in the Public Higher Education Institutions: Towards Improved Organizational Performance in Research and Development. *Journal of Research Management and Administration*. 1. 36-57. 10.18552/jorma.v1i1.759.
- [33] Bourdeau, S., Aubert, B., & Bareil, C. (2020). The effects of IT use intensity and innovation culture on organizational performance: the mediating role of innovation intensity. *Management Research Review*, 44(2), 359-380. <https://doi.org/10.1108/MRR-02-2020-0068>.
- [34] Xie, X., Wu, Y., & Zeng, S. (2016). A Theory of Multi-dimensional Organizational Innovation Cultures and Innovation Performance in Transitional Economies: The Role of Team Cohesion. *Chinese Management Studies*, 10 (3), 458-479.
- [35] Tian, M., Deng, P., Zhang, Y., & Salmador, M. P. (2018). How Does Culture Influence Innovation? A Systematic Literature Review. *Management Decision*, 56 (5), 1088–1107. <https://doi.org/10.1108/md-05-2017-0462>.
- [36] Owusu-Agyeman, Y. (2019). Transformational leadership and innovation in higher education: a participative process approach. *International Journal of Leadership in Education*, 1-23. <https://doi.org/10.1080/13603124.2019.1623919>.

- [37] Zhang, Q., Siribanpitak, P., & Charoenkul, N. (2018). Creative leadership strategies for primary school principals to promote teachers' creativity in Guangxi, China. *Kasetsart Journal of Social Sciences*. 1(7). <https://doi.org/10.1016/j.kjss.2018.08.007>.
- [38] Behrens, J., & Patzelt, H. (2018). Incentives, resources, and combinations of Innovation radicalness and innovation speed. *British Journal of Management*, 29(4), 691-711. <https://doi.org/10.1111/1467-8551.12265>.
- [39] Smith, R. W., & Smith, K. A. (2020). Opportunities and Obstacles to Making Innovation a Priority in Education. *Critical Questions in Education*, 11(2), 167-178.
- [40] Gess, C., Ruess, J., and Blömeke, S. (2019). Ein fach- und paradigmengreifendes Modell der Forschungskompetenz in den Sozialwissenschaften [A cross-disciplinary and cross-paradigm model of research competence in the social sciences]. *ZeHf – Zeitschrift für empirische Hochschulforschung* 3, 7–27. doi: 10.3224/zehf.v3i1.02.
- [41] Frattini, F., Usman, M., Roijakkers, N. & Vanhaverbeke, W. (2018). Researching open innovations in SMEs. World Scientific Publishing Company.
- [42] De Jong, L., Meirink, J., & Admiraal, W. (2022). School-based collaboration as a learning context for teachers: A systematic review. *International Journal of Educational Research*. Volume 112.
- [43] Hao, T. & Fadri, R. (2024). Career Values as Predictors of Teacher Professional Development. *International Journal For Multidisciplinary Research*.
- [44] Ao, C., & Bill P. Turnbull Jr., W. (2024). Continuing Professional Development of PE Teachers in Different School Levels. *International Journal For Multidisciplinary Research*.
- [45] Lv, Min, Hong Zhang, Paul Georgescu, Tan Li, and Bing Zhang. (2022). Improving.
- [46] Education for Innovation and Entrepreneurship in Chinese Technical Universities: A Quest for Building a Sustainable Framework. *Sustainability* 14,no.2:595. <https://doi.org/10.3390/su14020595>.
- [47] Cheng, M. M. H., Tang, S. Y. F., Wong, A. K. Y., & Yeh, F. Y. (2022). How early career teachers overcome everyday work-related challenges: an analysis from the perspective of teacher buoyancy. *Journal of Education for Teaching*, 49(5), 753–767. <https://doi.org/10.1080/02607476.2022.2150962>.
- [48] Zhu C, Wang D, Cai Y, Engels N. (2014). What core competencies are related to teachers' innovative teaching? *Asia-Pacific Journal of Teacher Education*. 2013;41.
- [49] Dongxiao, Mo & Kadir, Suhaida & Mohd. Sufian Kang, Enio Kang & Hassan, Roshafiza. (2024). Reliability and Validity of the Chinese Version of the Scale for Assessing the Teachers' Innovative Behavior. *International Journal of Academic Research in Progressive Education and Development*. 13. 10.6007/IJARPED/v13-i1/18845.
- [50] Li, Y. & Xu, L. (2024). Exploring the influence of teachers' motivation, self-efficacy, and institutional support on their research engagement: A study of Chinese university EFL teachers. *System*. Volume 121, 2024.
- [51] Zhang, X., & Wang, P. (2024). Research misconduct in China: towards an institutional analysis. *Research Ethics*, 0(0).
- [52] Wang X, Gao N, Chen H, et al. (2023) Review of retracted papers in the field of neurology. *European Journal of Neurology* 30(12): 3896–3903.
- [53] Oblipias, R. & Borines, M. (2022). Institutional culture as predictors of research competence among educators in basic education. *Journal of Positive Psychology*. Vol. 6. No. 6.