

Board 99: Systematic Literature Review on Organizational Resilience in the Context of Higher Education Institutions

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1. Abstract

COVID-19 affected everyone's life; this truthful statement also applies to teaching and learning contexts and how difficult it was for universities to face the pandemic. Some universities did well during the pandemic by being resilient, but some were unprepared, and a few failed on the task. This full paper presents findings from a work-in-progress (WIP) systematic literature review on Organizational Resilience (OR) in the context of Higher Education Institutions (HEIs).

The study follows a systematic literature review method to analyze and categorize current research on Organizational Resilience applied to Higher Education Institutions. This methodology incorporates a series of steps. First, using queries composed by concepts of interest, a search on a broad database is performed to develop an initial scoping set. Second, peer-reviewed databases are chosen to compare the findings from the same query search. Third, the data obtained from the peer-reviewed databases are tabulated. Finally, results derived from this process are analyzed for the development of patterns, findings, and insights. Following the previous method, this study located a total of 16 papers that compose the final dataset.

Findings from the study will be helpful for researchers, educators, and administrators by giving a clear idea of current literature related to Organizational Resilience in the context of Higher Education Institutions. Analysis and results derived from the study present a starting point for novel research on Organizational Resilience and Higher Education Institutions. Results present potential patterns from the literature to consider for future research. First, the purpose of most of the articles in the data set is to analyze how Organizational Resilience directly or indirectly relates to other organizational theories (e.g., Organizational Learning, Organizational Sustainability, Institutional Effectiveness, and Institutional Resilience) in the context of Higher Education Institutions to enable better management of said organizations. Second, considering all papers, only 12.5% present framework proposals. Third, although methodologies utilized include both Quantitative and Qualitative approaches, the Qualitative approaches are more utilized in the literature. Finally, 56.25% of the papers do not state any clear directions for future research on their content.

This study contributes to the literature by thoroughly examining current research on Organizational Resilience and its applications (empirical or conceptual) in Higher Education Institutions.

Keywords: Systematic Literature Review, Organizational Resilience, Higher Education Institutions

2. Background

Resilience as a concept has been critical in the past years and can be defined as “an ability to recover from or adjust easily to misfortune or change” [1]. This concept emerged strongly in research due to COVID-19 impact, and one example is how some universities struggle during the hardest period, but others even were helped during the same. This WIP paper analyzes literature that focuses on Organizational Resilience (OR) for Higher Education Institutions (HEIs). OR is “the organization’s capability to face disruptions and unexpected events in advance thanks to the strategic awareness and a linked operational management of internal and external shocks” [2].

3. Method

The SLR approach used for this research considers the method used in [3]. The methodology considers three different stages of SLR development. First, planning the review focuses on the identification of the need for a review, the preparation of a proposal, and the development of the review protocol. The second stage of conducting the review focuses on the identification of research, selection of studies, assessment of study quality, data extraction, and data synthesis. Finally, the third stage of reporting and dissemination focuses on the report and recommendations and, at last, getting evidence into practice.

From stage one, the need for a review was checked by searching “Organizational Resilience and Higher Education Institutions” in Google Scholar. Results showed 512,000 Raw results, meaning that there is a broad spectrum of studies about the two concepts. The preparation for a proposal considered the selection of studies from the Google Scholar search which were used as an initial scoping set (n=12). Studies from this set were searched in databases selected with librarian experts. The validation for the use of the database was analyzed considering Capture Rate calculations shown in figure 1. Capture Rate can be understood as the ability to retrieve publications that exist on the platforms, using the search terms.

$$\text{Capture Rate} = \frac{\sum_{i=1}^n \text{Article } i \text{ is consistent}}{\sum_{i=1}^n \text{Article } i}$$

$$\text{Article } a \text{ is consistent} = \begin{cases} 1; & \text{if found by title} = \text{found by using search phrase} \\ 0; & \text{otherwise.} \end{cases}$$

Figure 1. Equations to calculate capture rate.

Phase three centered on developing the protocol for the review. The purpose of the review is to understand the research trends of OR in the context of HEIs. The scope was done using the established methodology in [3], covering research trends of OR in HEIs contexts, and identifying all publications between 1959 and 2021. The search phrase used was a specific query: (“Higher Education” OR “University” OR “College”) AND (“Organizational Resilience” OR “Organisational Resilience”). The platforms selected were Emerald, Web of Science, ProQuest ABI INFORM GLOBAL, ScienceDirect, Scopus, and ERIC. Finally, the exclusion criteria

considered studies in the English language only, not considering the use of full-text-limiters, studies published between 1959 and 2021, only peer-reviewed publications, that the study context should focus on Higher Education contexts (e.g., K-12 context is automatically discarded), and removal of duplicates.

The second stage was conducted by analyzing studies from the search results and applying the exclusion criteria in two steps of phase 4. Studies achieving all criteria were added to the final dataset of the review. The dataset obtained included studies from the initial scoping set (9), as well as studies out of this initial scoping set (7). A summarized graphical explanation of this process is in Figure 2. This SLR review had a final dataset with 16 studies in total.

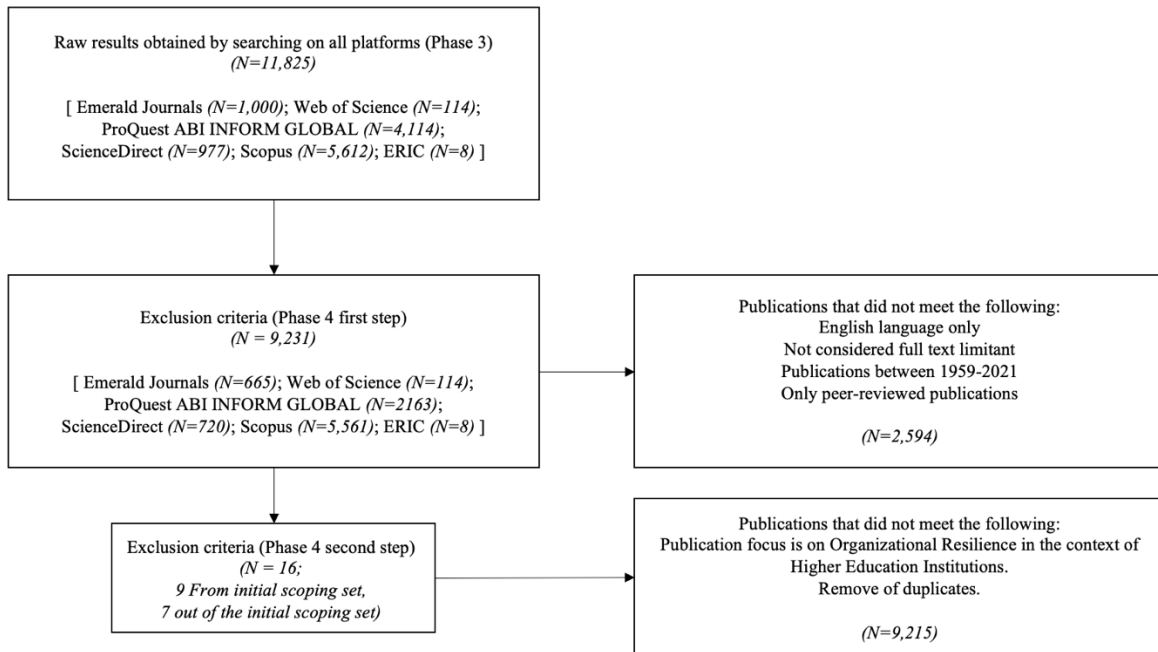


Figure 2. PRISMA diagram of the process taken from stage two of methodology.

4. Data Analysis

Bibliographic data showed that the number of publications tends to decrease from 2016 (2) until 2019 (0), the year where in fact no research at all was developed. But this shifted in 2020 (5) and 2021 (6). This shift of tendency can be attributed to a quick response to COVID-19 in terms of research developed. In terms of impact of publications, [4] presented the highest average number of citations per year with 25.40, followed by [5] with 15 citations per year on average. It is interesting to note that [4] is from 2017, and [5] is only from 2021. The authors with the most publications were Dr. Sezen-Gültekin, Dr. Argon, and Dr. Mallak. The first two had two

publications in 2020, whereas Dr. Mallak was a second author in two works in 2016. Platform results showed that Scopus and Web of Science presented the highest results of the platforms, with 11 and 10 respectively.

In terms of data extracted from the studies, since the number of studies obtained was not high, there are diverse topics and no clear pattern about the purpose of the study in the literature. This study distributed the spectrum mentioned into three categories and counted the number of studies with those purposes. These were: Author's observation from previous experiences (1), Shocking Events Analysis (5), and Study of the Relationship of OR with Organizational Performance concepts (9). From the 16 studies in the database, only two proposed Frameworks for future work. Qualitative approaches tend to be the most used in literature (7), where quantitative approaches and mixed methods (quantitative and qualitative methods) were similarly used (4 studies for quantitative and 3 for mixed methods). The most impactful result is that more than half of the studies (56.25% or 9 out of the 16 studies) did not present any future research agenda. Finally, the overall conclusions from the studies show a pattern: OR is directly related to other organizational factors (e.g., Organizational Myopia, or Institutional Effectiveness) in the context of HEIs. Further, when an HEI plans to aim for sustainable goals, the literature suggests that OR should be contemplated as a crucial part to accomplish those goals.

5. Implications for Engineering Education

Current literature shows that there is a gap in OR research in HEIs contexts, in terms of Engineering Education. Although most studies analyzed universities, academics, and departmental settings, there is no current research published that focuses on engineering departments as the organizational setting. In this sense, OR research is important for engineering educators considering the COVID-19 experience. Examples of this are the classrooms, how these changed from a physical setting to an online experience, then coming back to the original setting for some courses, and hybrid modalities for others.

Further, the inclusion of OR concepts in Engineering Management education may help to analyze the capability-based conceptualization of OR in the context of any shocking event. This capability-based conceptualization of OR was developed by Dr. Stephanie Duchek in 2016 and analyzes three-time references for a shocking event: anticipation (before), coping (during), and adaptation (after) to the event, including the knowledge present during this event as a factor affecting all time references [6]. This framework can help Engineering Management education by providing a tool for shocking analysis, which can provide a guidance to improve Organizational Resilience for Educational Institutions and other organizations.

6. Conclusion

This work-in-progress (WIP) paper provides the reader with an overview of the current literature on OR in HEIs contexts. The need for a review can be assessed in the 512,000 results obtained in the first search using Google Scholar. These were filtered until the 16 results. This abrupt decrease was caused by the high number of studies from the psychological field focusing on an individual level. This predominance can deviate potential research from the systemic nature of

OR and is important to mention considering the impact that research in OR can have on engineering education in general and Engineering Management education in particular.

The number of studies presented a dramatic increase in 2020, and 2021. This increase was mainly due to the COVID-19 experience. Most of the published studies in these two years focus to analyze causes, effects, and adaptation processes from past shocking events. An example of this is [4], which is the study with the most citations per year; most of the work that cited this study includes “COVID-19” in their name.

Considering future work, this study recognizes two possible goals where to aim as the purpose of the study: analyzing past shocking experiences in other universities and analyzing the relationship of OR with another organizational or managerial concept. These two cases were the most mentioned by the studies in the final dataset and seem to be the horizon for future work in the area. Also, future work aiming for those goals could provide a framework if possible. Currently, the literature does not have a proper number of studies proposing any type of framework. Finally, and although is recursive to mention, future work should include a clear future research agenda in it. This is considering the low number of studies in the dataset including future research agenda. In terms of Engineering Education, future work for this study can include further analysis for year 2022, which considering the trend, could have more publications in the topic than 2020, and 2021. Furthermore, future work could consider could include the evaluation for the better platforms to include in the review protocol, which could enhance the bibliographic results, and thus, posterior analysis about literature. Future work in general could relate to the methodology chosen, but the important issue is the lack of enough publications about OR in the context of HEIs, specifically with respect to engineering education.

7. References

- [1] Merriam-Webster, “Resilience definition,” 2023. <https://www.merriam-webster.com/dictionary/resilience> (accessed Feb. 07, 2023).
- [2] A. Annarelli and F. Nonino, “Strategic and operational management of organizational resilience: Current state of research and future directions,” *Omega (United Kingdom)*, vol. 62. Elsevier Ltd, pp. 1–18, Jul. 01, 2016. doi: 10.1016/j.omega.2015.08.004.
- [3] D. Tranfield, D. Denyer, and P. Smart, “Towards a Methodology for Developing Evidence-Informed Management Knowledge by Means of Systematic Review*,” 2003.
- [4] K. Ayebi-Arthur, “E-learning, resilience and change in higher education: Helping a university cope after a natural disaster,” *E-Learning and Digital Media*, vol. 14, no. 5, pp. 259–274, Sep. 2017, doi: 10.1177/2042753017751712.
- [5] A. T. Le, “Support for doctoral candidates in Australia during the pandemic: the case of the University of Melbourne,” *Studies in Higher Education*, vol. 46, no. 1, pp. 133–145, 2021, doi: 10.1080/03075079.2020.1859677.
- [6] S. Duchek, “Organizational resilience: a capability-based conceptualization,” *Business Research*, vol. 13, no. 1, pp. 215–246, Apr. 2020, doi: 10.1007/s40685-019-0085-7.