Construct measurement for dynamic adaptive capability in Indonesian higher education

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Abstract The ability of universities and colleges to adapt and respond effectively to these dynamic changes has become an important determinant of their success and relevance in the modern world. This study aimed to develop a comprehensive construct measurement tool to assess the dynamic adaptive capability (DAC) of higher education institutions in Indonesia. We collected data from 41 private universities in Indonesia. The DAC measurement construct consists of four main dimensions, identifying opportunities, creating, modifying and altering, and adapting to the dynamics of change. Each dimension consists of several indicators, which are assessed using face validity and quantitative methods. This study used confirmatory factor analysis (CFA) to determine construct validity and reliability by evaluating composite reliability (CR) and average variance extracted (AVE) values. The results of this study succeeded in validating and confirming the reliability of the DAC construct. The practical implications of these findings extend to organizations, notably higher education institutions seeking to increase their capacity to navigate a dynamic and uncertain business environment.

Keywords: Dynamic adaptive capability, higher education, validity, reliability

1. Introduction

In recent years, the rapidly changing landscape of global education has posed significant challenges to the higher education sector in Indonesia. The ability of universities and colleges to adapt and respond effectively to these dynamic changes has become a crucial determinant of their success and relevance in the modern world (Lin & Chen, 2016). This study aims to develop a comprehensive construct measurement for assessing the dynamic adaptive capability (DAC) of Indonesian higher education institutions. In essence, DAC pertains to an institution's ability to efficiently react, adjust, and introduce solutions in the face of the ever-changing challenges and requirements present in the Indonesian higher education sector. Utilizing this measurement instrument will help researchers and stakeholders in acquire more profound insights into the institutions' ability to navigate and prosper in an environment marked by continuous fluctuations and unpredictability.

In the contemporary business landscape, organizations confront a constantly changing and uncertain environment influenced by diverse factors, including technological advancements, organizational restructuring, and globalization (Foss et al., 2019; Zajac et al., 2014). This state of uncertainty also pertains to educational institutions, especially universities in Indonesia. The introduction of the "Independent Learning – Independent Campus (MBKM)”, emphasis on achieving the 8 Key Performance Indicators (KPIs) for undergraduate programs and the implementation of the Link & Match 8+I strategy policy for applied undergraduate program development (Kemdikbud, 2020) demand that universities maintain flexibility, responsiveness, and adaptability. The MBKM is a program aimed at creating a well-coordinated educational ecosystem that aligns with higher education learning and industry requirements (Kania, 2022; Sa et al., 2022). According to Suti et al. (2020), the development of universities requires improvement and enhancement in several strategic elements. These include enhancing the quality of academic programmes, developing the proficiency of human resources, improving facilities and infrastructure, and fostering an academic atmosphere that supports effective responses to the aforementioned changes. Such improvements are crucial for universities to successfully navigate and adapt to the dynamic and uncertain educational landscape they face (Schoemaker et al., 2018).

In addition to the external challenges that must be faced, universities are also confronted with internal challenges, particularly related to the need for high development budgets and stakeholders with conflicting objectives (Heaton et al., 2019), especially with the foundation (for private universities). The Ministry of Education and Culture, to optimize the administration of higher education and achieve good governance of private universities, has issued a policy where foundation members are not allowed to hold positions as leaders/lecturers/employees in the universities they govern (Kemdikbud RI, 2021). However, violations of this policy are still widespread, leading to role conflicts and conflicts of interest. On the other hand, managing a university is more complex than managing a nonprofit private company, as it not only involves satisfying...
stakeholders and the local community but also entails dealing with politics, freedom of speech issues, community engagement, and inclusion (Teece, 2018).

To confront the numerous challenges brought about by uncertainty and change, organizations must possess dynamic adaptability across all their resources, including both financial and human capital. Success in achieving performance objectives hinges on the ability of an organization's human resources to respond well to evolving demands (Burke et al., 2006; Taneja et al., 2016). With the advent of novel changes in work patterns, increasingly intricate tasks, and a growing number of responsibilities that necessitate collective efforts (Mesmer-Magnus & DeChurch, 2009; Salas et al., 2008), adaptability becomes a critical attribute for the workforce.

Beyond the challenges posed by the MBKM program, universities face the imperative of becoming dynamic, responsive, and adaptable institutions, serving as innovation pioneers in tandem with the progress of science and technology (Bartell, 2003; Karimi & Walter, 2015; Lee et al., 2018). Embracing the developments in science and technology assumes a pivotal role, prompting universities to become catalysts for disruptive innovation, reshaping mindsets; organizing workflows, productivity, discipline, and innovation-being, forward-looking, amenable to change, and bold in pursuing breakthroughs (Mookerjee & Rao, 2021; Scwab, 2016).

Competitive excellence necessitates universities to possess the right resources, capabilities, and strategies. In addition to robust dynamic capabilities, resources such as value, rareness, imperfect, impositionanility, and nonsubstitutability (Barney, 1991), and sound strategies, any advantage gained is susceptible to being unsustainable (Teece, 2017). As such, universities must fortify their dynamic adaptive capabilities to thrive in an ever-changing and competitive landscape.

In this study, we introduce the novel concept of a variable called dynamic adaptive capability (DAC), accompanied by its associated dimensions for measurement and corresponding indicators. To assess the validity and reliability of this measurement instrument, we conducted confirmatory testing, which provided strong evidence to support the validity and reliability of all the measurement dimensions. This newly proposed DAC variable, with its well-defined dimensions and reliable indicators, contributes to a deeper understanding of organizational adaptability and responsiveness in dynamic environments. This article seeks to provide a comprehensive analysis of the existing related research to contribute to the understanding and advancement of dynamic adaptive capability in the context of higher education institutions. This study also aimed to develop a comprehensive and precise measurement instrument to evaluate the capacity of higher education institutions in Indonesia to adapt and introduce education in response to the challenges of an ever-changing educational landscape.

2. Overview of Dynamic Adaptive Capabilities

The concept of dynamic adaptive capability in this article is derived from several previous theories, namely: adaptation theory (Chakravarthy, 1982), organizational adatation (Cameron, 1984), human adaptation (Thornton et al., 2019), capability theory (Heaton et al., 2019; Otto & Ziegler, 2006; Teece et al., 1997), ordinary dynamic adaptive capability (Teece, 2017), dynamic capability (Heaton et al., 2019; Souza & Takahashi, 2019).

Adaptation describes the state of survival, and for business organizations, it is about how they can endure various environmental conditions (Chakravarthy, 1982), with the nature of interaction with the environment being unstable through defensive strategies, stable with reactive strategies, and neutral environments with proactive strategies. Moreover, (Sarta et al., 2021), defines adaptation as deliberate decision-making by members of an organization, which leads to observable actions aimed at reducing the distance between the organization and its economic and institutional environment. Organizational adaptation refers to modifications and changes within the organization or its components to adjust to changes in the external environment to restore balance to imbalanced conditions (Cameron, 1984). Adaptation must not only be planned ‘from the top down’ but also continue developing from the bottom and middle levels of the organizational structure. Adapting to a globalized situation must involve and connect levels within the organization and its main actors, pathways, and institutional nodes (Thornton et al., 2019).

The capability approach provides an appropriate approach to evaluating education and human social services (Otto & Ziegler, 2006; Teece et al., 1997), and as an egalitarian approach to social justice, it holds particular strength when dealing with issues related to real-life behavior (Teece, 2017), dividing capabilities into two types: ordinary and dynamic capabilities. Ordinary capabilities enable operational effectiveness, whereas dynamic capabilities enable the sensing and seizing of new business opportunities (Teece et al., 1997). Dynamic capabilities create opportunities for new value creation strategies by modifying ordinary capabilities (Eisenhardt & Martin, 2000) and are based on innovation (Masteika & Cepinskis, 2015). The dynamic capabilities base view posits that a firm’s success is driven mainly by its ability to adapt to a changing environment to secure its value creation potential and achieve competitive advantage (Wójcik, 2015). When an organization cultivates dynamic capabilities, it gives rise to fresh managerial methods (where individuals recognize and apply established procedures); and procedures involving resources to generate novel outcomes (in the form of organizational routines) (Souza & Takahashi, 2019).

Globalization and internationalization have transformed the boundaries of higher education institutions, providing new ways for services and products and subjecting them to public scrutiny due to their identified potential as critical catalysts.
in developing new knowledge-based and "digital" economies (Gumport & Sporn, 1999). Higher education internationalization refers to integrating international/cross-cultural dimensions into the functions of teaching, research, and service within an institution (Shafaei & Razak, 2016). Hayter and Cahoy (2018) state that colleges and universities are essential components of dynamic and vibrant democratic societies, and must educate an increasingly diverse society, provide skills and vital experiences for social mobility, and generate new knowledge essential for addressing society’s most significant challenges. The dynamic capabilities framework guides universities in managing innovation ecosystems (Heaton et al., 2019).

To be effective in a variety of dynamic environmental conditions, individuals and work teams within an organization must be able to adapt to new job tasks and demands quickly (Burke et al., 2006; Maynard et al., 2015) to respond quickly and effectively to many organizations using teams to help them stay competitive. Adaptation is a broad concept and has been applied to all levels of organizational systems (Baard et al., 2014), including higher education institutions. The future is unpredictable, and full of uncertainty and risk, so change is inevitable. Comprehending capabilities can be instrumental in bridging significant voids, as organizations essentially set themselves apart from others through learning, entrepreneurship, innovation, and astute decision-making. An organization’s distinctiveness is defined by its capabilities, particularly those related to decision-making, innovation, and adaptability (Teece, 2019).

Founders and managers of higher education institutions influence activities related to dynamic capabilities, such as sensing, seizing, and reconﬁguring, by interpreting new opportunities and sharing them with others (Souza & Takahashi, 2019). Strategic responsiveness reﬂects an organization’s ability to sense environmental changes and learn from emergent adaptive responses to readjust its activities and better align with changing conditions. The author defines dynamic adaptive capability as the ability to adapt to rapid environmental changes and integrate those changes into a business strategy. Dynamic capability includes nonroutine managerial actions and creative outputs from the company’s expert teams. This capability is also embedded in the routines and business processes of an organization, and rooted in the organization’s unique history (Teece, 2017). Team members in higher education, especially those in study programs, are currently faced with demands for continuous change, so they must be able to answer and solve future challenges. Therefore, dynamic adaptive capability is needed to explore new things related to science and technology.

2.1. Operationalizing Dynamic Adaptive Capability

Operationalizing dynamic adaptive capability is expected to advance research on dynamic adaptive capability because a strong link between constructs and their empirical measures is necessary for theory development. Dynamic capability refers to a specific set of processes and skills that enable an organization to continuously improve its core processes (Eisenhardt & Martin, 2000). Moreover, (Teece et al., 1997) define dynamic capability as a company’s ability to integrate, build, and reconfigure its internal competencies and external changes to respond quickly to external factors. Dynamic capability theory emphasizes knowledge as the primary resource for organizations to achieve sustainable competitive advantage (Teece et al., 1997).

The author proposes four dimensions to measure dynamic adaptive capability, which were derived from previous authors and the author’s suggestions. The dimensions of dynamic adaptive capability are as follows: 1) Identifying opportunities (Heaton et al., 2019), which is the ability to identify and unearth information, up-to-date knowledge, technology, and work methods to anticipate environmental changes; 2) Modifications and alterations (Cameron, 1984), the ability to make modifications and changes related to strategies, procedures, technology, and resources to adapt to the demands of change; 3) Adapt to the dynamics of change, the ability to implement new things as a quick and effective adaptation to changes in the business environment; and 4) Creative (Nonaka et al., 2016), the ability to create and introduce new solutions and ideas to address issues and leverage opportunities in the changing business environment.

Before employing the dimensions of variables and indicators to assess the research variables, we undertake a process known as content validity. Content validity involves assessing the appropriateness and importance of the test’s content through logical analysis by a professional panel or by evaluating experts’ opinions (Sekaran et al., 2016). This assessment ensures that the questionnaire’s content aligns effectively with the study’s objectives and embodies content that adequately encompasses a comprehensive array associated with the investigated attributes. Typically, this evaluation is carried out by a panel of seven or more experts (Devon et al., 2007). Content validity is executed through face validity, guided by expert judgment, and in this instance, it involves the participation of nine experts specializing in the human resources field. These four dimensions are achieved through eight indicators and are explained in Table 1.

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Indicator</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifying and seize opportunities (Heaton et al., 2019)</td>
<td>Able to identify and explore advancements in science (DAC1)</td>
<td>We can explore advancements in science as an effort to adapt to environmental changes.</td>
</tr>
<tr>
<td></td>
<td>Able to identify and explore advancements in technology</td>
<td>We can explore advancements in technology to adapt to changes.</td>
</tr>
</tbody>
</table>

Heaton et al. (2019)
3. Methods

In this section, we outline the approach used to develop and measure the construct of the DAC in Indonesian higher education institutions. Figure 1 shows the proposed method for determining the DAC.

<table>
<thead>
<tr>
<th>(DAC2) Creative (Nonaka et al., 2016)</th>
<th>Able to develop new work methods (DAC3)</th>
<th>We can develop new work methods to the demands of the changing work environment.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Able to create new work methods (DAC4)</td>
<td>We can create new work methods following the demands of the work environment.</td>
</tr>
<tr>
<td>(DAC5) Modifications and alterations (Cameron, 1984)</td>
<td>Able to adapt to demands</td>
<td>We can make adjustments to meet the demands of the changing work environment.</td>
</tr>
<tr>
<td></td>
<td>Able to develop new strategies (DAC6)</td>
<td>We find it easy to develop strategies for a project.</td>
</tr>
<tr>
<td>(DAC7) Adapt to the dynamics of change</td>
<td>Able to adapt skills (DAC7)</td>
<td>We can adapt our skills to accomplish unusual tasks.</td>
</tr>
<tr>
<td></td>
<td>Discovering new things (DAC8)</td>
<td>We can discover new things.</td>
</tr>
</tbody>
</table>

3.1. Indicator development

Based on the conceptual framework and insights from the literature review and expert consultation, we develop a pool of potential indicators for each dimension of the DAC. We propose the DAC dimension, as shown in Table 1. The DAC dimension was measured using a Likert scale ranging from 1 to 7, where: “1” means Strongly Disagree; “2” means Disagree; “3” means Somewhat Disagree; “4” means Neutral; “5” means Somewhat Agree; “6” means Agree, and “7” means Strongly Agree.

3.2. Collecting Data

The study focuses on private PGRI universities in Indonesia, comprising a total of 41 universities with a diverse range of 474 study programs, each with varying accreditation rankings. Among the 474 study programs, 168 hold a “good” accreditation rating, 279 have “very good” accreditation rating, and 27 have achieved an “excellent” rating. The sampling method employed is purposive sampling, as it allows for the selection of samples that meet specific criteria and can provide the desired information, either due to their unique characteristics or their alignment with predetermined researcher criteria (Sekaran, Uma and Bougie, 2016). For this research, the sample will consists of departments from universities with both “Excellent” and “Very Good” accreditation ratings, with the respective head of the department acting as the designated research respondent.

3.3. Testing

To assess the validity of the questionnaire administered to the respondents, confirmatory factor analysis (CFA) was employed. The criteria for evaluating the dimensions and items of dynamic adaptive capability were utilized, with standard loading factors serving as indicators of construct validity, adhering to a minimum standard of 0.5 (Hair JR et al., 2009).

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However, an ideal loading factor value of 0.7 was anticipated. Notably, higher standard loading factors or standardized regression weights indicate stronger validity of the research instrument.

3.4. Interpretation and Implications

Apart from validity, it is essential to interpret indicators such as the critical ratio (C.R.), significance level (p), and average variance extracted (AVE). The critical ratio (C.R.) is obtained by dividing parameter estimates by the standard error and represents a statistical test result in this context (Byrne, 2001). For a 95% probability level (.05), the minimum standard for C.R. is typically set at 0.7 or higher (Byrne, 2001; Hair JR et al., 2009). A research instrument is considered reliable if the construct’s reliability surpasses the acceptable threshold of 0.7. Reliability between 0.6 and 0.7 is still considered acceptable in research assessment.

4. Results

The percentage of descriptive data from the participating respondents is presented in Table 2. Among the respondents, 64% were male, while 36% were female. A total of 71% of the respondents had a master’s degree, while 39% had a doctorate. The working period is dominated by lecturers who have worked for more than 5 to 10 years, comprising 37.5%. The functional position of lecturers is dominated by the position of Assistant Professor (Lektor), at 51%.

![Figure 2](a) Descriptive of gender, (b) descriptive of education, (c) descriptive of working period, (d) descriptive of functional position.

The construct of dynamic adaptive capability is built through four dimensions: identifying opportunities, creative modifications and alterations. In addition to validity, indicators also need to interpret the values of the critical ratio (CR), significance level (p), and average variance extracted (AVE). The value of C.R. is the result of the division between parameter estimates and standard error, and in this context, the C.R. represents a statistical test result (Byrne, 2001). With a 95% probability level (.05), the minimum standard for C.R. is greater than or equal to 0.7 (Byrne, 2001; Hair JR et al., 2009). A research instrument is considered reliable if the acceptable threshold for construct reliability is more than 0.7. A reliability between 0.6 and 0.7 is still acceptable, and the model adapts to the dynamics of change. These four dimensions, are elaborated into eight-item indicators. After conducting confirmatory factor analysis (CFA) using AMOS 22 software for the validity test in this research, the results are as follows.
Table 3 Validity test results for dynamic adaptive capability.

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Standardized Regression Weights</th>
<th>P value</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAC1</td>
<td>0.870</td>
<td>0.000</td>
<td>Valid</td>
</tr>
<tr>
<td>DAC2</td>
<td>0.902</td>
<td>0.000</td>
<td>Valid</td>
</tr>
<tr>
<td>DAC3</td>
<td>0.911</td>
<td>0.000</td>
<td>Valid</td>
</tr>
<tr>
<td>DAC4</td>
<td>0.885</td>
<td>0.000</td>
<td>Valid</td>
</tr>
<tr>
<td>DAC5</td>
<td>0.878</td>
<td>0.000</td>
<td>Valid</td>
</tr>
<tr>
<td>DAC6</td>
<td>0.779</td>
<td>0.000</td>
<td>Valid</td>
</tr>
<tr>
<td>DAC7</td>
<td>0.758</td>
<td>0.000</td>
<td>Valid</td>
</tr>
<tr>
<td>DAC8</td>
<td>0.827</td>
<td>0.000</td>
<td>Valid</td>
</tr>
</tbody>
</table>

Source: primary data processed (2023).

Figure 1 Dynamic Adaptive Capability of Standard Loading Factors.

Based on the data in Table 2 and Figure 1, all the indicators had standard loading factors > 0.5 and p values < 0.05. This means that all the indicators meet the validity criteria.

Table 4 Calculation of the Reliability Test.

<table>
<thead>
<tr>
<th>Variabel</th>
<th>Indicators</th>
<th>Standard Loading Factor</th>
<th>facStandard loading tor^2</th>
<th>e</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dynamic Adaptive Capability</td>
<td>DAC1</td>
<td>0.870</td>
<td>0.7569</td>
<td>0.2431</td>
</tr>
<tr>
<td></td>
<td>DAC2</td>
<td>0.902</td>
<td>0.813604</td>
<td>0.186396</td>
</tr>
<tr>
<td></td>
<td>DAC3</td>
<td>0.911</td>
<td>0.829921</td>
<td>0.170079</td>
</tr>
<tr>
<td></td>
<td>DAC4</td>
<td>0.885</td>
<td>0.783225</td>
<td>0.216775</td>
</tr>
<tr>
<td></td>
<td>DAC5</td>
<td>0.878</td>
<td>0.770884</td>
<td>0.229116</td>
</tr>
<tr>
<td></td>
<td>DAC6</td>
<td>0.779</td>
<td>0.606841</td>
<td>0.393159</td>
</tr>
<tr>
<td></td>
<td>DAC7</td>
<td>0.758</td>
<td>0.574564</td>
<td>0.425436</td>
</tr>
<tr>
<td></td>
<td>DAC8</td>
<td>0.827</td>
<td>0.683929</td>
<td>0.316071</td>
</tr>
<tr>
<td>Amount</td>
<td></td>
<td>6.81</td>
<td>5.819868</td>
<td>2.180132</td>
</tr>
</tbody>
</table>

Source: Data processing (2023).

Based on the standard loading factor values, the construct reliability (CR) can be calculated with formula (1).

\[
CR = \frac{\sum_{i=1}^{n} SLF_i^2 / \sum e}{\sum_{i=1}^{n} SLF_i^2 / \sum e}
\]

\[
= \frac{6.81}{2.100132} = 0.955101.
\]

The result shown from the calculation using equation (1) is 0.955. Good reliability must result in CR>0.70; that is, we have shown that 0.955>0.7.

The AVE value is obtained by formula (2).
Increasing adaptive capabilities will assist universities in making modifications and adjustments to curricula, teaching strategies, and policies. These modifications and adjustments are feasible and valid for measuring dynamic adaptive capability. These changes and challenges occurring in the educational and societal environment. In response, academic achievement, economies of scale, and the demand of the world of education (Rae, 2010) are crucial in higher education, reflecting the extent to which universities can adapt to and address the challenges and changes occurring in the educational and societal environment. In an era of rapid and complex change, higher education institutions must be able to identify new opportunities, foster creativity in developing innovative solutions, make modifications and adjustments to curricula, teaching strategies, and management systems, and adapt to the dynamics of continuous change (Azeem et al., 2019; Gaspar & Mabic, 2015). The dynamic adaptive capability variable is worth testing as both a determinant and a mediating factor in achieving higher education goals.

The dynamic adaptive capability variable is worthy of testing as a determining factor and a mediating factor in achieving higher education goals. The proposed variable dimensions and indicators are also feasible and valid for measuring dynamic adaptive capability. When students, lecturers, and higher education officials can effectively adapt to various changes, challenges, and academic demands, they are more likely to achieve better learning quality, academic achievement, and deep understanding. Today's world is very dynamic, and individuals who can adapt quickly to changes in work and technology will have a competitive advantage (Schoemaker et al., 2018; Tallman et al., 2018).

\[ AVE = \frac{\sum_{i=1}^{8} SLF_i^2}{\sum_{i=1}^{8} SLF_i^2 + \sum_{i=1}^{8} e_i^2} \]

\[ = \frac{5.8199868 + 2.180132}{5.8199868 + 2.180132} = 0.727484. \]

From the calculation results, the value is > 0.5, which means that the reliability of the dynamic adaptive capability indicator variable meets the criteria.

5. Discussion

This study aimed to investigate the concept of dynamic adaptive capability (DAC), developed based on four dimensions: identifying opportunities (Heaton et al., 2019), creativity (Nonaka et al., 2016), modifications and alterations (Cameron, 1984), and adaptation to the dynamics of change. These dimensions consist of eight indicators used as markers to measure these dimensions. The study employs face validity by involving nine experts to discuss the proposed dimensions and indicators. After conducting focus group discussions to address content validity, the expert team eventually provided approval and added some input for further analysis. In addition to face validity, confirmatory factor analysis (CFA) was also conducted using AMOS 22 software to assess the construct’s validity and reliability.

We assessed the construct validity of dynamic adaptive capability by examining two essential criteria: standard loading factors and P-values. Standard loading factors indicate the relationship between the indicators and the corresponding latent variables. All the indicators had standard loading factors greater than 0.5. This result suggested that the indicators effectively measure their dimensions and contribute to overall construct validity. The p values were examined to determine the significance of the indicators. A p value of less than 0.05 indicates that the relationship between the indicator and dimension is statistically significant. All the indicators meet this criterion, and the evidence supporting the validity and robustness of the DAC construct is increasing.

To assess the reliability of the dynamic adaptive capability construct, researchers have used composite reliability (CR) as a measure. CR assesses the consistency of the indicators in measuring the underlying construct. In this study, the calculated CR was 0.955101, which exceeded the recommended threshold of 0.70. These findings indicate that the indicators are internally consistent and reliable in measuring the dynamic adaptive capability construct.

This study also evaluates average variance extracted (AVE) to determine how much variance is explained by the indicators of the construct being measured. An AVE value greater than 0.5 indicates that the indicator has captured the underlying construct. The AVE calculated in this study was 0.727484, which exceeded the recommended threshold. This result shows that the indicators successfully explain most of the dynamic adaptive capability construct variation. The construct validity and reliability of dynamic adaptive capability are crucial in higher education, reflecting the extent to which universities can adapt to and address the challenges and changes occurring in the educational and societal environment. In an era of rapid and complex change, higher education institutions must be able to identify new opportunities, foster creativity in developing innovative solutions, make modifications and adjustments to curricula, teaching strategies, and management systems, and adapt to the dynamics of continuous change (Azeem et al., 2019; Gaspar & Mabic, 2015). The dynamic adaptive capability variable is worth testing as both a determinant and a mediating factor in achieving higher education goals.

The dynamic adaptive capability variable is worthy of testing as a determining factor and a mediating factor in achieving higher education goals. The proposed variable dimensions and indicators are also feasible and valid for measuring dynamic adaptive capability. When students, lecturers, and higher education officials can effectively adapt to various changes, challenges, and academic demands, they are more likely to achieve better learning quality, academic achievement, and deep understanding. Today's world is very dynamic, and individuals who can adapt quickly to changes in work and technology will have a competitive advantage (Schoemaker et al., 2018; Tallman et al., 2018).

6. Final Considerations

This study makes a significant contribution to the field of organizational research by validating and confirming the reliability of the dynamic adaptive capability construct. These findings have practical implications for organizations wishing to improve their ability to adapt and respond to a dynamic and uncertain business environment. As businesses continue to face increasingly complex challenges, fostering dynamic adaptive capability is becoming a critical element for long-term survival and growth.

In the context of implementation, the findings of this research can guide universities in developing policies and strategies that focus on increasing their adaptive capabilities. Increasing adaptive capabilities will assist universities in optimizing the use of new opportunities (Manbachi et al., 2017), responding to the changing needs of students and society (Rae, 2010), and increasing the competitiveness and relevance of higher education institutions in meeting the ever-evolving demands of the world of education (Palvia et al., 2018).
However, when implementing the results of this research, universities need to recognize that adaptation depends not only on one factor but also on interactions between various complex dimensions (Forez & Camison, 2016). Therefore, universities must apply a holistic and systems-based approach to developing their adaptive abilities (Read et al., 2018). In addition, the results of this study can also be an impetus for further research exploring how higher education can develop and improve dynamic adaptive capability. In addition, further research can involve other variables that influence the adaptive ability of higher education, such as organizational culture, leadership, and available resources.

Thus, this research makes an essential contribution to developing the concept of dynamic adaptive capability in higher education. The results can help universities be better prepared to face future challenges and remain relevant in meeting the needs of education and society. However, efforts to improve adaptive abilities must be carried out continuously and involve various stakeholders in higher education so that the results of this research can produce a natural and sustainable impact (Caena & Redecker, 2019; Gaševi & Dawson, 2019).

6.1. Implication of Findings

These findings significantly contribute to understanding dynamic adaptive capability as a multidimensional construct. By successfully validating the four dimensions of identifying opportunities, creative, modifying and altering, and adapting to the dynamics of change and confirming the reliability and validity of the eight indicators used, this study provides a powerful tool for researchers and practitioners to assess an organization's adaptability to a dynamic environment.

Opportunity identification, creativity, modification, and the ability to adapt to change are essential components of increasing an organization's resilience and competitive advantage. The findings from this study can be used to develop strategies and interventions to foster a more dynamic and adaptive organizational culture. For business and management, realizing the significance of these dimensions and their indicators can lead to better decision-making processes, improved performance, and sustainable growth in a changing business landscape.

6.2. Limitations and Future Research Directions

Although this study provides valuable insights into the dynamic adaptive capability construct, it is essential to acknowledge some limitations. First, the research sample and context must be considered to generalize the findings to different industries and organizational settings. Replication of studies across sectors and countries can increase the robustness of the findings. Additionally, future research could investigate the relationship between dynamic adaptive capability and other organizational variables, such as innovation, organizational learning, and overall performance. Understanding this relationship can provide a more comprehensive view of how dynamic adaptive capability affects an organization's overall success and sustainability.

Ethical considerations

The author also states that the respondent has agreed to the research conducted.

Conflict of Interest

The authors declare that they have no conflicts of interest.

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