Borneo Engineering & Advanced Multidisciplinary International Journal (BEAM)
Volume 3, Special Issue (ICo-ASCNITech 2024), September 2024,
Pages 17-23

Bibliometric Analysis of The Adaptation Of Addie Model in Art and Design at the Higher Education Keyword Using Vosviewer Indexed by Google Scholar

Ismalyza Mt Arif[1]*, Nor Azlinda Gaman[1], Nor Rofizah Johari[2]

[1]Politeknik Ibrahim Sultan, KM 10, Jalan Kong Kong, 81700 Pasir Gudang, Johor, Malaysia
[2]Universiti Teknologi MARA Cawangan Melaka Kampus Bandaraya Melaka, 110 Off Jalan Hang Tuah, 75350 Melaka, Malaysia

*Corresponding author: ismalyza@pis.edu.my
Please provide an **official organisation email** of the corresponding author

Full Paper

Article history
Received
6 August 2024
Received in revised form
6 August 2024
Accepted
16 August 2024
Published online
30 September 2024

Abstract

The adaptation of the ADDIE (Analysis, Design, Development, Implementation, Evaluation) model in higher education presents a systematic framework for revitalising the teaching and learning process. Originally utilised in instructional design, the ADDIE Model has gained recognition within higher education contexts to bolster the quality of teaching and learning experiences. This paper aims to develop a deeper understanding of the utilisation of the ADDIE model in the context of higher education in art and design programmes. The Publish or Perish application is used to find publications that are relevant to the keywords that have been entered. The "ADDIE Model in Higher Education For Art And Design" was utilised in this study as a keyword and mapping the analysis with the VOSviewer app. According to the search results, 200 relevant articles were published between 2019 and 2023. The findings of this study reveal an increasing trend in the number of papers related to the ADDIE model over the years. This trend suggests growing interest and recognition of the model's utility in educational research and practice. This study should aid researchers in determining the research theme in the future.

Keywords: - ADDIE model, higher education, art and design

1. Introduction

Bibliometric analysis of the ADDIE model's adaptation in higher education art and design is important for examining the latest developments in this field. Through meticulous research of scholarly works indexed by Google Scholar and analysed using VOSviewer, this paper aims to gain a deeper understanding of the utilisation of the ADDIE model in the context of higher education in art and design.

The instructional design model (ADDIE) is implemented in this study, and the ADDIE model is an acronym for analysis, design, development, implementation, and evaluation. ADDIE applies five steps or stages of interrelated activities that guide the practice of developing learning programs.

In a design system, each step or stage informs the others even though it may not always follow a sequential process, with one stage's result serving as the following stage's input (ADDIE Model_Traning Industry, 2018) The ADDIE model is a teaching model widely used by many designers and trainers to develop educational and training programs, which first appeared in 1975 at University of Florida. Its name is an acronym, depicting the five basic steps of this model in the design and development of the learning experience, which are Analysis, Design, Development, Implementation, and Evaluation (Spatioti et al., 2022).

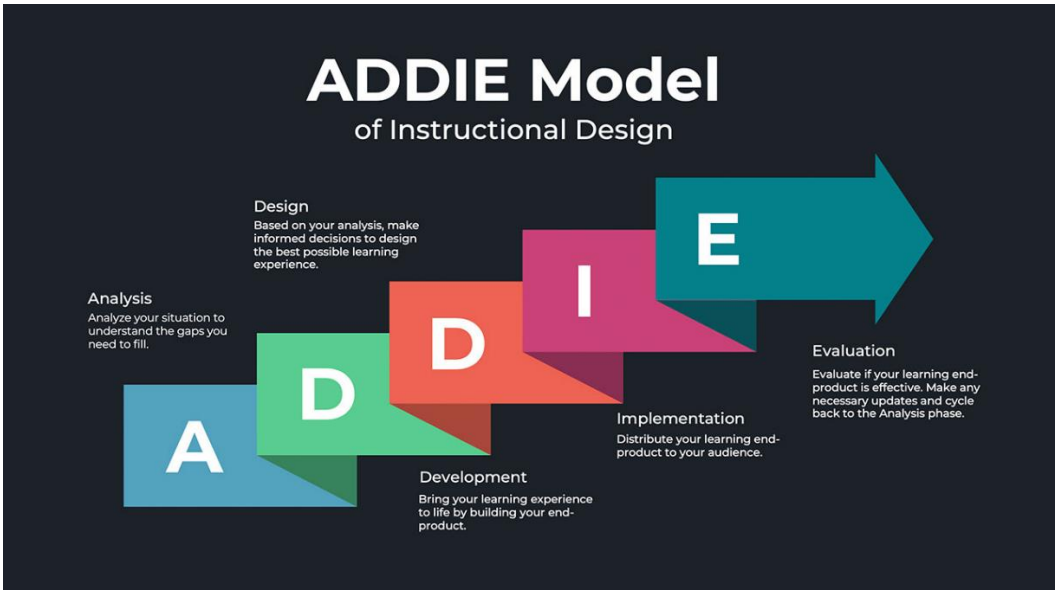

Fig. 1. ADDIE model of instructional design

This study focuses on adapting the ADDIE model in the context of art and design in higher education. The ADDIE model is acknowledged as the most commonly used instructional framework for virtual teaching and learning and thus was chosen for this study. The successful implementation of this model in the redesign of online courses and the opportunities this redesign effort provides for enhancing student engagement and learning are examined here (Abernathy, 2019). Therefore, by analysing the results using VOSviewer software, this study aims to provide a deeper understanding of the research landscape in regard to the use of the ADDIE model in the context of art and design programs in higher education. This study guides researchers, educators, and policymakers in designing effective and innovative curricula in the field of art and design.

1.1 Problem Statement

This study critically examines several relevant issues to ensure the rigor and integrity of its findings on the implementation of ADDIE model in higher education art and design programs. Firstly, the representativeness and comprehensiveness of data sourced from Google Scholar are scrutinised to determine if they sufficiently encapsulate the entire bibliometric landscape of the ADDIE model. Studies suggest that while Google Scholar offers extensive coverage, its comprehensiveness may be limited by publication bias and inconsistencies in indexing practices (Halevi et al., 2017). Secondly, the validity and reliability of VOSviewer and Google Scholar data are assessed. VOSviewer is widely used for bibliometric analysis, yet its data's validity and reliability can be influenced by the quality of the input data and the study's methodological rigour (Van Eck & Waltman, 2010). This raises concerns about potential exceptions or flaws in the data that could impact the outcomes analysis. Thirdly, the adequacy of selected keywords in covering all dimensions of the ADDIE model within the context of art and design is questioned. Keywords are crucial in bibliometric analysis as they guide the retrieval of relevant literature; however, their selection is often subjective and may overlook significant terms (Zupic & Čater, 2015). Alternative keywords that might be significant but have been excluded from the analysis could lead to incomplete or biased results. Addressing these concerns is crucial to ensuring the study's findings' robustness and reliability concerning the application of the ADDIE model in higher education settings, particularly in the field of art and design. This comprehensive evaluation of data sources and methodological approaches aims to enhance the validity of bibliometric analyses and contribute to more accurate and reliable conclusions in educational research (Bornmann, 2014).

1.2 Objective

This paper aims to develop a deeper understanding of the utilisation of the ADDIE model in the context of higher education in art and design programs.

2. Methodology

The data from the articles used in this study are based on research published in journals indexed by Google Scholar. The choice of Google Scholar as the primary source is due to its being free. You can also use the Scopus database, but access to it requires payment as it is somewhat difficult. However, we plan to use the Scopus database in our next investigation. In data management, we use the Publish or Perish program.

According to the requirements of the title, keywords, and abstract, the keyword "ADDIE Model In Higher Education For Art And Design" is used to search for published data.

As a result, 200 articles have been obtained and evaluated based on the chosen topic. The selected publications were published between 2019 and 2023. Then, the articles are stored in *.ris format. Additionally, the data is visualised and analysed using a bibliometric map. Data from the prepared database source is then visualised in three ways: Network visualisation, overlay visualisation, and density visualisation.

3. Result and Discussion

3.1 Research Development in the Field of ADDIE Model

Fig. 2 illustrates the research trend from 2019 to 2023 for the keyword "ADDIE Model in Higher Education For Art And Design." Over the last five years, there has been a significant increase in research utilising the term "ADDIE Model," as reflected by the upward trend. The number of articles published in this field has gradually increased, starting from 23 articles in 2019 to 33 articles in 2020, further increasing to 37 articles in 2021, 48 articles in 2022, and 59 articles in 2023. Specific data can be seen in Table 1.

Table 1. Average publication of articles in 2018 – 2023

Year	Count
2019	23
2020	33
2021	37
2022	48
2023	59
Total	200
Average	**40**

3.2 Cluster Resulting from the VOSviewer Mapping with the Keyword of ADDIE Model In Higher Education For Art And Design

i) In Cluster 1, topics such as "ADDIE," "ADDIE model," "higher education," "medium," "model," and "teaching" are explored comprehensively. This cluster examines the application of instructional design principles and methodologies within the context of higher education. It investigates how many instructional designers have elaborated the ADDIE model for a long time, and five general instructional design programs have been established throughout this process. Cluster 1 contributes valuable insights into developing and implementing pedagogical strategies to foster a dynamic and effective learning environment in higher education institutions. The ADDIE instructional design model is highly beneficial for educational beginners due to its organisational and cyclical characteristics, thus being evaluated as the foundational and effective content most widely utilised in instructional design modes (Fan, 2021)

ii) In Cluster 2, the focus is on "analysis", "evaluation", and "implementation". The analysis phase involves gathering data to understand the needs of the project or program. Evaluation is conducted to assess the impact and effectiveness of the measures taken. Implementation refers to the execution of the designed plans and strategies (Dousay & Logan, 2021). The importance of thorough analysis cannot be overlooked in teaching or instructional design. Emphasis on identifying instructional goals is the most crucial step in the entire process. This process is systematically organised using the ADDIE model to effectively achieve the project or program's goals.

iii) Cluster 3 explores various topics such as "android," "concept," "elementary school," "form," "junior high school," "learning medium," "media," "medium," "motivation," "product," "R&D," "resource," and "validation." This cluster investigates using technology, particularly Android platforms, as learning mediums in elementary and junior high school settings. Media use in the learning process can generate new aspirations and interests, enhance motivation, and stimulate learning activities. Additionally, it can have significant psychological impacts on students (Ranuharja et al., 2021). It focuses on the development and validation of innovative learning resources and products, aiming to enhance motivation and engagement among students. Through research and development (R&D) efforts, valuable resources are created and validated to support effective teaching and learning practices in educational institutions. The learning process in educational institutions is pivotal at all levels of education, necessitating continual improvement. Throughout this journey, students must acquire learning experiences to effectively tackle the challenges they encounter (Ranuharja et al., 2021)

iv) Cluster 4 covers various topics, including "component," "Covid," "junior high school student," "learning process," "online learning," "pandemic," "paper," and "part." This cluster explores different components and aspects related to the learning process, especially concerning junior high school students and the challenges brought about by the COVID-19 pandemic. It investigates the implementation of online learning methods and the immediate impact of the pandemic on education. Recent trends in digital learning suggest that blended learning is considered the most popular and effective mode of instruction, especially during the pandemic (Nuryadi et al.,2021). Moreover, it sheds light on the role of academic papers and their sections in understanding and enhancing the learning process.

v) Cluster 5 consists of six items: "Analysis," "Analyze," "Development method," "Evaluation," "Implementation," and "Jakarta." This cluster focuses on methods and processes related to analysis, development, evaluation, and implementation, particularly within the context of Jakarta. It explores various approaches to analysing, evaluating, and implementing strategies or projects to enhance efficiency and effectiveness in development efforts within the Jakarta region.

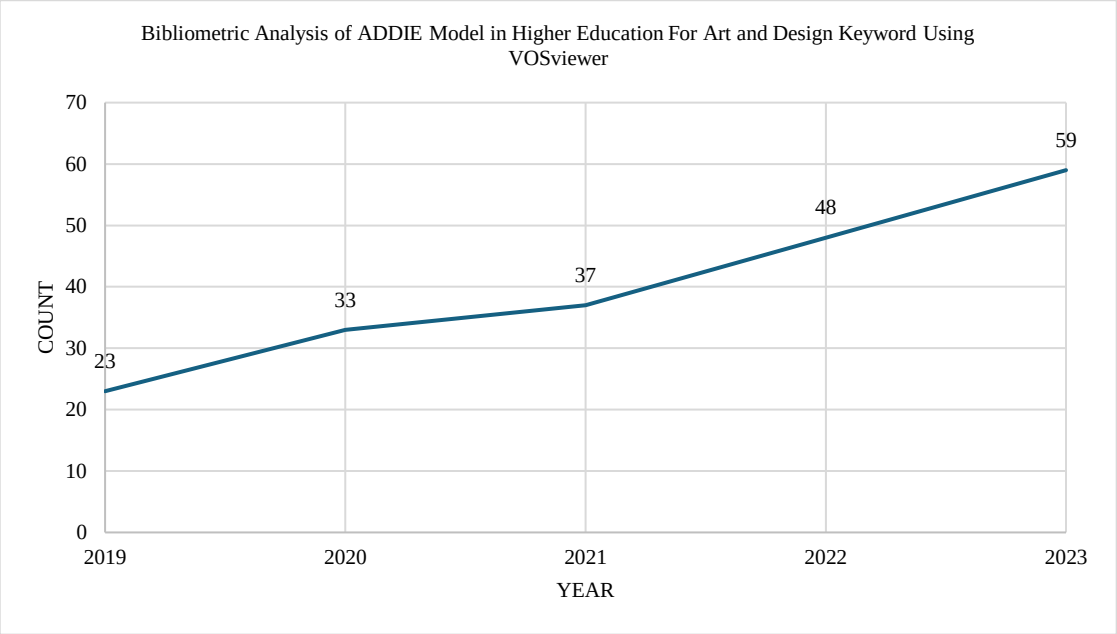

Fig 2. The development level of research on the ADDIE model in higher education for art and design

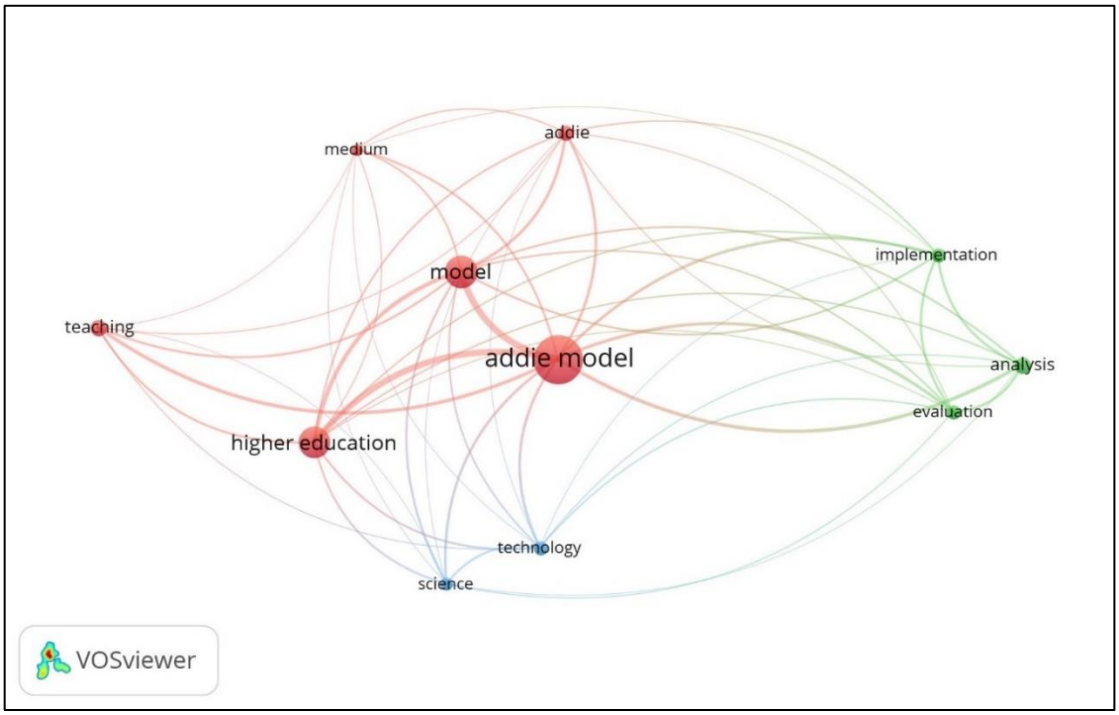

Fig. 3. Network visualisation of ADDIE model in higher education for art and design keyword

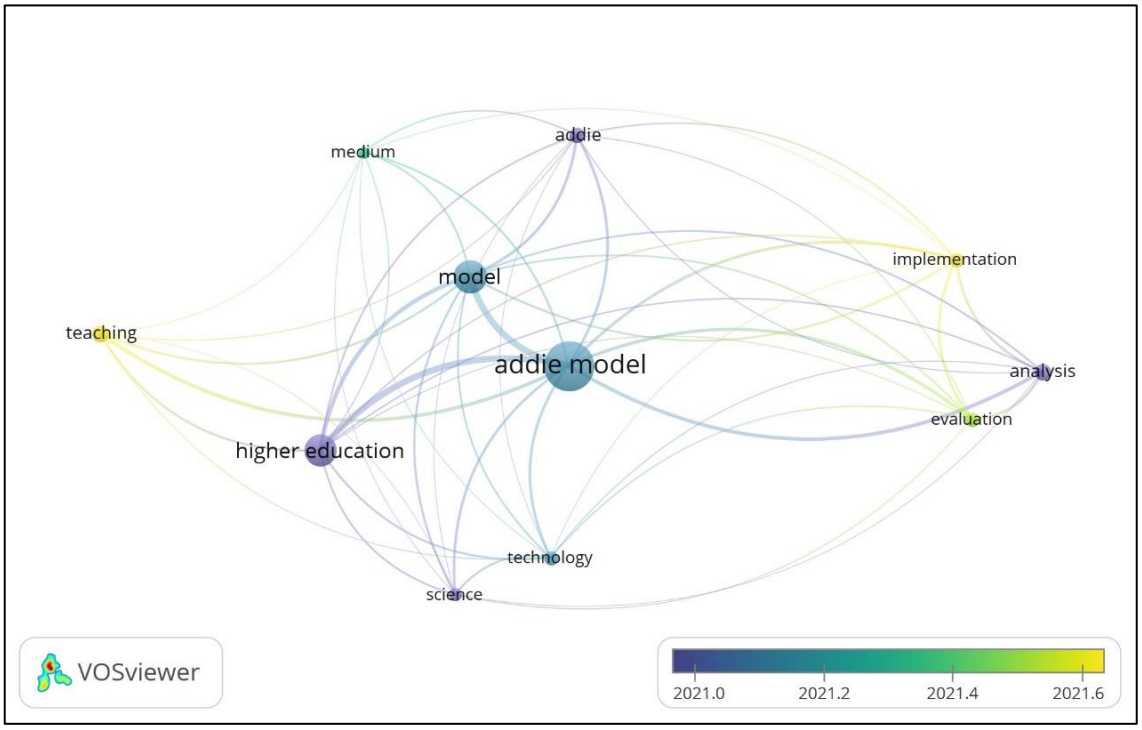

Fig. 4. Overlay visualisation of ADDIE model in higher education for art and design keyword

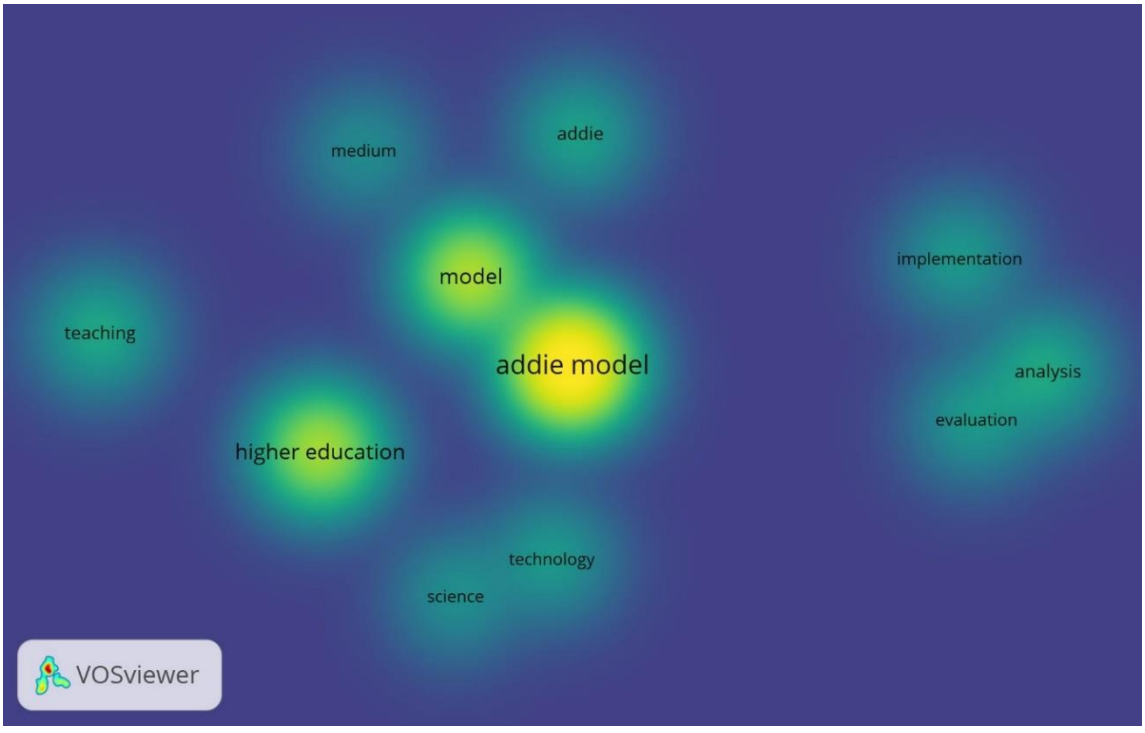

Fig. 5. Density visualisation of ADDIE model in higher education for art and design keyword

3.3 Visualisation ADDIE Model in Higher Education for Art and Design Topic Area Using VOSviewer

VOSviewer provides three distinctive visualisation methods: network visualisation (Fig. 3), overlay visualisation (Fig. 4), and density visualisation (Fig. 5) (Al Husaeni & Nandiyanto, 2022b). Network visualisation illustrates term relationships through networks or connecting lines (Al Husaeni & Nandiyanto, 2022a).

In the network visualisation shown in Fig. 3, we can see clusters representing different topic areas (Al Husaeni & Nandiyanto, 2022a). The term "ADDIE Model" is important as a keyword in this study. Fig. 4 shows the outlines of overlay visualisation. This figure shows the most prominent year, a large number of researches have been done on the topics of interest, particularly in June of 2021, which was the highlight for studying the "ADDIE Model." Furthermore, Fig. 5 illustrates the density visualisation method that helps us understand how often certain terms are used in research. The brighter colour indicates that the term is used more often.

4. Conclusion

This study aims to develop a deeper understanding of the utilisation of the ADDIE model within higher education, specifically in art and design programs. The research combines the mapping capabilities of the VOSviewer application with the terms associated with the ADDIE model. Data collection was conducted using the Publish or Perish reference application, filtering information with the keyword "ADDIE Model In Higher Education For Art And Design." Bibliographic data included topics, titles, keywords, and abstracts, identifying 200 relevant articles published between 2019 and 2023. The ADDIE model, an acronym for Analysis, Design, Development, Implementation, and Evaluation, is a widely used instructional design framework. Its application in higher education, particularly in creative disciplines like art and design, underscores this model's adaptability and broad applicability in diverse educational settings (Branch & Dousay, 2015). By employing the VOSviewer application, this study mapped the bibliographic data to visualise the landscape of ADDIE model research. VOSviewer is a powerful tool for constructing and visualising bibliometric networks, including co-authorship, co-occurrence, and citation networks (Van Eck & Waltman, 2010). The clusters identified in the study may represent different aspects of the ADDIE model's application, such as its role in curriculum development, instructional design, educational technology integration, and assessment strategies in higher education. The increasing frequency of these terms highlights the ongoing evolution and expansion of the ADDIE model's relevance in contemporary educational contexts. This bibliometric analysis, leveraging tools like VOSviewer and Publish or Perish, offers a comprehensive overview of the current state of ADDIE model research. It underscores the model's importance and versatility in higher education, particularly in fields that demand innovative and effective instructional strategies, such as art and design programs (Moher et al., 2010). The study findings revealed an increasing trend in the number of papers related to the ADDIE model over the years. This trend suggests growing interest and recognition of the model's utility in educational research and practice. The VOSviewer analysis generated five clusters, each represented by a circle of varying sizes, indicating the frequency of term usage. These clusters provide insights into the dominant themes and emerging trends within the literature on the ADDIE model.

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