

# THE IMPACT OF THE ADDIE MODEL ON THE EFFECTIVENESS OF SOCIAL MEDIA-BASED TEACHING AND LEARNING IN SHIJIAZHUANG CITY, HEBEI, CHINA

Xiaomeng LI<sup>1</sup>

1 Student-Master of Education Program in Educational Management Innovation,  
Pathumthani University, Thailand; 331598939@qq.com

## ARTICLE HISTORY

Received: 28 July 2023

Revised: 16 August 2023

Published: 28 August 2023

## ABSTRACT

This research aims are following: 1) To understand the ADDIE model's impact on social media-based teaching and learning for undergraduate students. 2) To optimize social media use: Studying the impact of the ADDIE model on social media-based teaching and learning can help educators optimize the use of social media for educational purposes. 3) To conduct the course content in a teaching approach for undergraduate students in Shijiazhuang City, Hebei, China. The majority of the respondents were female students aged 19-20. The Results demonstrated a general consensus among students regarding the effectiveness of the ADDIE model in facilitating learning, with the Development component identified as the only significant predictor of student satisfaction. Furthermore, the study found no significant differences in the effectiveness of the model across different genders or age groups. However, the relationships between different phases of the ADDIE model and learning outcomes were overall weak. These findings emphasize the need for further exploration of the specific influences of various ADDIE model components in a social media-based learning environment. Future research may also examine other demographic factors that could impact learning outcomes. This study provides critical insights into the role of the ADDIE model in social media-based teaching and learning, highlighting the importance of the Development component for enhancing student satisfaction.

**Keywords:** ADDIE Model, Social Media-Based Teaching, Learning Outcomes Student Satisfaction, Development Component

**CITATION INFORMATION:** Li, X. (2023). The Impact of the Addie Model on the Effectiveness of Social Media-Based Teaching and Learning in Shijiazhuang City, Hebei, China. *Procedia of Multidisciplinary Research*, 1(8), 26

## INTRODUCTION

Currently, the use of social media has become ubiquitous in many aspects of daily life, including education. The increasing popularity of social media as a communication tool has led to its widespread use in academic settings, particularly in online learning environments. While some research suggests that social media can enhance learning outcomes, other studies have raised concerns about the adverse effects of social media use on academic performance, including distraction and reduced attention span (Fleck & Johnson-Migalski, 2015). Moreover, the global situation regarding the impact of social media on learning outcomes is complex and multifaceted. Countries and regions have varying degrees of access to social media and differing cultural attitudes toward its use. For instance, social media is not widely used in many developing countries due to limited technology and internet infrastructure access.

In contrast, social media is often integral to the academic experience in developed countries. Universities and schools use social media platforms to engage students and promote collaborative learning. Furthermore, the impact of social media on learning outcomes is influenced by various factors, such as the type of social media platform, the frequency and duration of use, and the context of use. For instance, social media platforms like Twitter and Facebook are more conducive to fostering discussion and collaboration. Others, such as Instagram and Snapchat, maybe more distracting due to their emphasis on visual content.

According to a study by Wang (2018), using social media in learning has become increasingly popular in China, with many schools and universities exploring the potential benefits of integrating social media into their curriculum. One study conducted in China investigated the use of social media in a university English writing course. The study found that using social media, specifically, WeChat allowed for more frequent and meaningful interactions between students and teachers outside the classroom. Additionally, students reported feeling more motivated and engaged in their learning when using social media as part of their coursework. (Zhang & Liang, 2017) conducted in China examined using Weibo, a microblogging platform similar to Twitter, as a second language vocabulary learning tool. The study found that using Weibo increased motivation and engagement among learners and improved vocabulary acquisition and retention. However, while social media has the potential to enhance learning experiences, there are also concerns about its impact on academic integrity and student privacy. Some schools and universities in China have implemented policies and guidelines to address these issues and ensure the responsible use of social media in education. The use of social media in learning is a growing trend in China, with studies suggesting that it can enhance student motivation, engagement, and learning outcomes. However, schools and universities need to consider the potential risks and implement appropriate policies and guidelines to ensure the responsible and effective use of social media in education.

Therefore, the ADDIE model with social media can enhance the instructional design by providing a structured approach and incorporating engaging and collaborative learning experiences. The ADDIE model can guide instructional designers in developing effective and efficient training or learning programs. At the same time, social media can provide an engaging and accessible platform for learners to interact with each other and with instructors. The researcher is interested in studying The Impact of the ADDIE Model on the Effectiveness of social media-based Teaching and Learning in Shijiazhuang City, Hebei, China. To understand and know the effectiveness of learning outcomes and improve the education system in China in the future.

## LITERATURE REVIEWS

### **The Concept of Social Media in Education Global Trends and Challenges**

The widespread adoption of social media has significantly transformed communication and information dissemination globally. This change has brought about new opportunities and challenges for educators and institutions to optimize the learning experience (Gikas & Grant, 2013). One major trend is the increasing use of social media platforms for collaborative learning, enhancing communication, and promoting student engagement (Gikas & Grant, 2013). Social media tools such as Facebook, Twitter, and LinkedIn provide opportunities for learners and educators to connect, share resources, engage in discussions, and collaborate on projects in a more interactive and dynamic environment than traditional classrooms (Selwyn, 2016). These platforms facilitate the creation and dissemination of user-generated content, allowing learners to actively participate in the construction and sharing of knowledge (Veletsianos & Kimmons, 2012). Despite the potential benefits of social media in education, several challenges must be addressed. Privacy concerns are a significant issue, as many users may inadvertently share personal information or engage in behaviors that put their privacy at risk (Greenhow, Robelia, & Hughes, 2009). To mitigate these concerns, educators and institutions should develop clear guidelines and policies for social media use, ensuring students know the potential risks and best practices for online privacy. Cyberbullying is another challenge associated with social media use in education. Social media platforms' anonymity and ease of communication can lead to harassment, intimidation, and other negative behavior among users (Greenhow, Robelia, & Hughes, 2009). Educators and institutions must establish policies and procedures to prevent and address cyberbullying, creating a safe and respectful online learning environment for all students. Lastly, the potential for distraction from academic tasks is a concern when incorporating social media into educational settings. The constant stream of updates, notifications, and messages from social media platforms may lead students to spend more time on these sites rather than focusing on their studies (Junco, 2012). To address this issue, educators should carefully consider the specific learning objectives and activities associated with social media use, ensuring that the platforms are used purposefully and effectively to support learning goals.

### **The Role of Social Media in Learning Outcomes**

The impact of social media on learning outcomes has been a subject of considerable debate among researchers and educators. Studies have produced mixed results, highlighting social media users' potential benefits and drawbacks in educational settings. On the one hand, research suggests that social media can enhance learning outcomes by fostering collaboration, increasing motivation, and promoting critical thinking (Manca & Ranieri, 2016). Social media platforms allow students to connect with their peers and instructors, share ideas, and engage in discussions that deepen their understanding of the subject (Veletsianos & Kimmons, 2012). This increased engagement and interaction can lead to higher motivation levels, positively impacting learning outcomes (Wang, Chen, & Li, 2014). Moreover, social media can facilitate the development of critical thinking skills by encouraging students to evaluate, analyze, and synthesize information from various sources (Greenhow, Robelia, & Hughes, 2009). Students can develop a more comprehensive understanding of complex issues by engaging with diverse perspectives and ideas, ultimately enhancing their learning outcomes. On the other hand, some studies have raised concerns about the adverse effects of social media use on academic performance. Distraction and reduced attention span are notable concerns, as students may spend more time browsing social media platforms than focusing on their coursework (Fleck & Johnson-Migalski, 2015). This increased multitasking can negatively impact students' ability to concentrate on their studies, leading to poorer learning outcomes (Junco, 2012). Additionally, the quality of the interactions and the content shared on social media can significantly influence learning outcomes. Students engaging in superficial discussions or

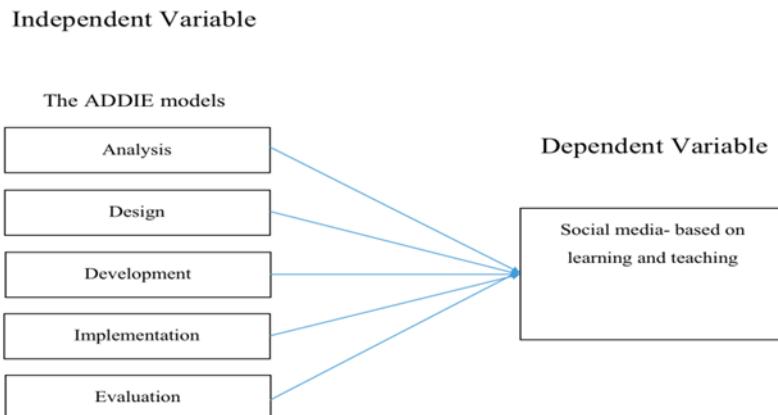
consuming low-quality content may not derive meaningful learning experiences from social media use (Manca & Ranieri, 2016).

In conclusion, the relationship between social media use and learning outcomes are complex. It depends on various factors, such as the specific social media platform, the context of use, and individual student characteristics. While social media has the potential to enhance learning outcomes by fostering collaboration, increasing motivation, and promoting critical thinking, it can also lead to distraction and reduced attention span. Educators and instructional designers should consider these factors when integrating social media into their teaching practices to ensure its use positively influences students' learning experiences.

### **Social Media Use in the Chinese Educational Context**

In recent years, the use of social media in the Chinese educational context has witnessed significant growth, with platforms such as WeChat and Weibo becoming increasingly popular among schools and universities (Wang, 2018). These platforms offer unique opportunities for educators and students to engage in interactive learning experiences, share resources, and collaborate on academic projects (Zhang & Liang, 2017). One of the main advantages of using social media in Chinese education is the potential to enhance student motivation, engagement, and learning outcomes. For example, a study by Zhang and Liang (2017) found that integrating WeChat into a university English writing course allowed more frequent and meaningful interactions between students and teachers outside the classroom. This increased interaction contributed to higher levels of motivation and engagement among students, ultimately improving learning outcomes. Similarly, another study conducted in China investigated using Weibo, a microblogging platform similar to Twitter, as a second language vocabulary learning tool (Gao, Luo, & Zhang, 2012). The researchers found that using Weibo increased motivation and engagement among learners, leading to improved vocabulary acquisition and retention. However, the use of social media in the Chinese educational context is not without challenges. Concerns regarding academic integrity and student privacy have been raised, as the widespread use of social media can potentially facilitate cheating, plagiarism, and the unauthorized sharing of personal information (Gao, Luo, & Zhang, 2012). To address these concerns, some schools and universities in China have implemented policies and guidelines to ensure the responsible use of social media in education. These policies may include clear expectations for student behavior, guidelines for appropriate content sharing, and strategies for maintaining student privacy online. Additionally, educators in China must navigate the complex landscape of internet censorship and government control over information dissemination. This requires a careful and nuanced approach to incorporating social media into educational practices while complying with local regulations and focusing on academic integrity.

In summary, using social media in Chinese education offers opportunities and challenges. While platforms like WeChat and Weibo can potentially enhance student motivation, engagement, and learning outcomes, addressing concerns related to academic integrity and student privacy is essential. By implementing suitable policies and guidelines, schools and universities in China can harness the advantages of social media while ensuring its responsible and effective use in education.



**Figure 1** Conceptual Framework

## RESEARCH METHODOLOGY

**Quantitative Research:** Quantitative research methods can be employed to measure the Impact of the ADDIE Model on the Effectiveness of social media-based Teaching and Learning in Shijiazhuang City, Hebei, China. Surveys, questionnaires, or pre-and post-tests can be used to collect data on student learning outcomes, engagement, and satisfaction. These data can then be analyzed using statistical methods to determine the impact of the instructional management approaches on students' learning experiences and professional preparedness. **Descriptive Statistics:** Descriptive statistics are used to summarize and describe the main features of the data. They include measures of central tendency (mean, median, and mode), dispersion (range, variance, and standard deviation), and frequency distributions. Descriptive statistics can help provide an overview of the data, such as the average satisfaction level of students or the distribution of scores on pre-and post-tests.

**Inferential Statistics** are used to make inferences about the population based on the sample data. They can help determine whether there is a significant relationship between variables or whether the observed differences between groups are due to chance. Some inferential statistical methods that can be used in this research include: **Pearson Correlation Coefficient:** This measure can assess the strength and direction of the relationship between two continuous variables (e.g., the relationship between students' outcomes levels and learning outcomes). **Regression Analysis:** Regression analysis can explore the relationship between a dependent variable (e.g., students' learning outcomes) and one or more independent variables (e.g., ADDIE Model). These statistical methods can help the researcher answer the research questions and test the hypotheses on the effectiveness of innovative instructional management approaches, their impact on students' learning outcomes, and the benefits and challenges associated with their implementation.

**Research instrument:** Data Collection Tools for Quantitative Research: The researcher used a rating scale of 5: Most Agree, Agree, moderate, Disagree, and Very Disagree; they developed an improvement from the research questionnaire Likert scale (Likert, 1932). The questionnaire is divided into 3 parts are:

Part 1 The status of the respondents It was a multiple-choice question with 4 questions to the demographics of the respondents.

Part 2 In this part is the study of the Impact of the ADDIE Model on the Effectiveness of social media-based Teaching and Learning in Shijiazhuang City, Hebei, China. It is a 5-level estimation scale question asking about factors of linguistic landscape as dependent variables.

Part 3 This part examines the outcome factors of the Impact of the ADDIE Model on the Effectiveness of social media-based Teaching and Learning in Shijiazhuang City, Hebei,

China. It utilizes a 5-point assessment scale to inquire about factors that serve as independent variables and are categorized into two distinct domains.

## RESEARCH RESULTS

The Analysis component of the ADDIE model influencing social media-based teaching and learning in Shijiazhuang City, Hebei, China. This analysis, evaluated using the coefficient of variation, maintains an Agree stance. Factors addressed include identifying and tackling constraints and challenges in implementing social media-based teaching and learning, considering learners' characteristics like age, learning preferences, and prior knowledge, conducting an in-depth examination of the target audience and their needs, clearly outlining the learning objectives and goals of social media-based teaching and learning, and taking into account the learning environment and available resources during the planning phase.

**Table 1** Mean Standard Deviation and Statistic Significant of the Difference in Analysis in ADDIE Model

Analysis	$\bar{X}$	S.D.	Significant	CV%	Level
The learning objectives and goals of social media-based teaching and learning are clearly defined	4.26	.621	Agree	14.58	4
Social media-based teaching and learning have thoroughly analyzed the target audience and their needs.	4.11	.715	Agree	17.40	3
The learning environment and available resources have been considered in the planning process	4.31	.621	Agree	14.41	5
The learners' characteristics, such as age, learning preferences, and prior knowledge, have been considered.	3.92	.922	Agree	23.52	2
The constraints and challenges in implementing social media-based teaching and learning have been identified and addressed.	3.93	.929	Agree	23.64	1
<b>Total</b>	<b>4.10</b>	<b>.761</b>	<b>Agree</b>		

The Design component of the ADDIE model influencing social media-based teaching and learning in Shijiazhuang City, Hebei, China. This analysis, evaluated using the coefficient of variation, maintains an agreed stance. The social media platforms selected for teaching and learning are suitable and accessible for the target audience, the instructional materials and assessments in social media-based teaching and learning are aligned with the learning objectives; the design includes clear instructions and guidance for learners to navigate and use the materials effectively, The design of social media-based teaching and learning materials considers various learning styles and preferences, and the instructional strategies used in social media-based teaching and learning are well-planned and effective.

**Table 2** Mean Standard Deviation and Statistic Significant of the Difference in Design in the ADDIE Model

Design	$\bar{X}$	S.D.	Significant	CV%	Level
The instructional strategies used in social media-based teaching and learning are well-planned and effective.	4.14	.811	Agree	19.59	5
The instructional materials and assessments in social media-based teaching and learning are aligned with the learning objectives.	3.92	.935	Agree	23.85	2
The design of social media-based teaching and learning materials considers various learning styles and preferences.	3.97	.905	Agree	22.80	4
The social media platforms selected for teaching and learning are suitable and accessible for the target audience.	3.91	.940	Agree	24.04	1
The design includes clear instructions and guidance for learners to navigate and use the materials effectively.	3.93	.929	Agree	23.64	3
<b>Total</b>	<b>3.97</b>	<b>.904</b>	<b>Agree</b>		

The Development component of the ADDIE model influencing social media-based teaching and learning in Shijiazhuang City, Hebei, China. This analysis, evaluated using the coefficient of variation, maintains an agreed stance. The social media-based teaching and learning materials are easy to access and navigate, the content is accurate, up-to-date, and relevant to the learning objectives, multimedia elements, such as images, videos, and audio, are effectively integrated into the materials, the social media-based teaching and learning materials are engaging and high-quality, and multimedia elements, such as images, videos, and audio, are effectively integrated into the materials.

**Table 3** Mean Standard Deviation and Statistic Significant of the Difference in Development in the ADDIE Model

Development	$\bar{X}$	S.D.	Significant	CV%	Level
The social media-based teaching and learning materials are engaging and high-quality.	4.23	.645	Agree	15.25	4
The social media-based teaching and learning materials are easy to access and navigate.	3.93	.926	Agree	23.56	1
The content is accurate, up-to-date, and relevant to the learning objectives.	4.20	.694	Agree	16.52	2
Multimedia elements, such as images, videos, and audio, are effectively integrated into the materials.	4.24	.637	Agree	15.02	5
Multimedia elements, such as images, videos, and audio, are effectively integrated into the materials.	4.21	.654	Agree	15.53	3
<b>Total</b>	<b>4.16</b>	<b>.711</b>	<b>Agree</b>		

The Implement component of the ADDIE model influencing social media-based teaching and learning in Shijiazhuang City, Hebei, China. This analysis, evaluated using the coefficient of variation, maintains an agreed stance. The teachers are adequately trained to use social media-based teaching and learning material, social media-based teaching and learning materials are implemented effectively in the educational setting, the learners can easily access and use the materials on their preferred devices, there is effective communication and collaboration among learners and teachers through the social media platforms, and The teachers and students have the necessary support and resources to use social media-based teaching and learning materials.

**Table 4** Mean Standard Deviation and Statistic Significant of the Difference in Implement in the ADDIE Model

Implement	<b>X</b>	<b>S.D.</b>	<b>Significant</b>	<b>CV%</b>	<b>Level</b>
Social media-based teaching and learning materials are implemented effectively in the educational setting.	3.92	.915	Agree	23.34	2
The teachers and students have the necessary support and resources to use social media-based teaching and learning materials.	4.25	.625	Agree	14.71	5
The teachers are adequately trained to use social media-based teaching and learning materials.	3.93	.929	Agree	23.64	1
The learners can easily access and use the materials on their preferred devices	4.24	.639	Agree	15.07	3
There is effective communication and collaboration among learners and teachers through the social media platforms	4.28	.630	Agree	14.72	4
<b>Total</b>	<b>4.12</b>	<b>.747</b>	<b>Agree</b>		

The Evaluate component of the ADDIE model influencing social media-based teaching and learning in Shijiazhuang City, Hebei, China. This analysis, evaluated using the coefficient of variation, maintains an agreed stance. The social media-based teaching and learning materials are regularly evaluated and updated to meet the learners' needs, the evaluation process involves both formative and summative assessments to ensure continuous improvement, Social media-based teaching and learning materials have a positive impact on learning outcomes and student engagement, Assessment results are analyzed to determine the effectiveness of the social media-based teaching and learning materials, and Feedback from learners and teachers is collected and used to improve the materials and instructional strategies.

**Table 5** Mean Standard Deviation and Statistic Significant of the Difference in Evaluation in the ADDIE Model

Evaluation	<b>X</b>	S.D.	Significant	CV%	Level
The social media-based teaching and learning materials are regularly evaluated and updated to meet the learners' needs	3.92	.935	Agree	23.85	1
Social media-based teaching and learning materials have a positive impact on learning outcomes and student engagement	4.24	.633	Agree	14.93	3
Feedback from learners and teachers is collected and used to improve the materials and instructional strategies	4.26	.624	Agree	14.65	5
Assessment results are analyzed to determine the effectiveness of the social media-based teaching and learning materials	4.35	.649	Agree	14.92	4
The evaluation process involves both formative and summative assessments to ensure continuous improvement	4.23	.648	Agree	15.32	2
<b>Total</b>	<b>4.20</b>	<b>.697</b>	<b>Agree</b>		

## DISCUSSION & CONCLUSION

This study investigated the influence of the ADDIE model on social media-based teaching and learning in Shijiazhuang City, Hebei, China, primarily among female students aged 19-20 pursuing a Bachelor of Business and Administration. The results indicate that students generally agreed with the effectiveness of the ADDIE model in various components, such as Analysis, Design, Development, Implementation, and Evaluation. Furthermore, the One-Way ANOVA test showed no significant differences in the effectiveness of social media-based teaching and learning across genders or age groups. The Pearson correlation analysis revealed varying relationships between the ADDIE model phases, but overall weak relationships with the outcomes. Multiple regression analysis highlighted the Development component as the only significant predictor of student satisfaction. As the Development variable increases, student satisfaction is expected to increase, while other factors do not show a significant relationship with satisfaction.

The Pearson correlation analysis showed varying relationships between the ADDIE model phases, but overall weak relationships with the outcomes.

Multiple regression analysis identified the Development component as the only significant predictor of student satisfaction. As the Development variable increases, student satisfaction is expected to increase, while other factors in the model do not show a significant relationship with satisfaction.

These findings suggest that while the ADDIE model's Development component has a significant positive impact on student satisfaction, other components may not play as significant a role. In addition, no notable disparities were observed in the effectiveness of social media-based teaching and learning across different genders and age groups.

These findings correspond with earlier studies that have emphasized the significance of the development stage in instructional design (Branch & Dousay, 2015). The development stage entails the creation and refinement of learning materials, the integration of multimedia components, and ensuring content relevance to learning objectives (Molenda, 2015). The positive influence of the Development component on student satisfaction in this study implies

that learners appreciate high-quality, engaging, and easily accessible materials in social media-based teaching and learning environments.

Nonetheless, the limited impact of other ADDIE components on student satisfaction in this study contrasts with some existing research. For example, the analysis phase, which encompasses understanding learners' needs and traits, has been deemed vital for creating effective instructional materials (Gustafson & Branch, 2002). Likewise, implementation and evaluation phases are considered critical for successful instructional design since they involve the practical use of learning materials and their ongoing enhancement (Reiser & Dempsey, 2018). The weak associations between these components and student satisfaction in this research might be attributed to the specific context of social media-based teaching and learning or potential research design limitations.

The lack of significant differences in the effectiveness of social media-based teaching and learning among genders and age groups in this study aligns with some research suggesting that gender and age may not be potent determinants of learning outcomes in technology-enhanced learning settings (Ritzhaupt, Poling, Frey, & Johnson, 2014). However, it is crucial to acknowledge that other demographic factors, such as socioeconomic status, cultural background, or prior experience with technology, could impact the effectiveness of social media-based teaching and learning (Li & Kirkup, 2007).

In conclusion, this research adds to the understanding of the ADDIE model's role in social media-based teaching and learning, particularly emphasizing the Development component's importance for student satisfaction.

## REFERENCES

AAl-Rahmi, W. M., Othman, M. S., & Yusuf, L. M. (2015). The role of social media for collaborative learning to improve academic performance of students and researchers in Malaysian higher education. *The International Review of Research in Open and Distributed Learning*, 16(4), 177-204.

Billet, S. (2011). *Vocational Education: Purposes, Traditions, and Prospects*. Springer.

Nicol, D. J., & Macfarlane-Dick, D. (2006). Formative Assessment and Self-Regulated Learning: A Model and Seven Principles of Good Feedback Practice. *Studies in Higher Education*, 31(2), 199-218.

Oliver, K. (2012). *The Role of the Art College*. In K. Oliver (Ed.), *The Art of Education* (pp. 27-48). Intellect Books.

Prince, M. (2004). Does Active Learning Work? A Review of the Research. *Journal of Engineering Education*, 93(3), 223-231.

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68-78.

Sadler, D. R. (1989). Formative Assessment and the Design of Instructional Systems. *Instructional Science*, 18(2), 119-144.

Shepard, L. A. (2005). *Linking Formative Assessment to Scaffolding*. Educational

**Data Availability Statement:** The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

**Conflicts of Interest:** The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

**Publisher's Note:** All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the

editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.



**Copyright:** © 2023 by the authors. This is a fully open-access article distributed under the terms of the Attribution-NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0).