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Designing Discord Servers for Senior High School Students' Online Learning in Davao City, Philippines

Ana Patricia Tanquilan^{1*} , Benigno Agapito Jr.²

¹ *School of Media Studies, Mapua University, Makati City, Philippines*

² *University of the Philippines Open University, Los Baños, Laguna, Philippines*

* Correspondence: apptanquilan@mymail.mapua.edu.ph

Abstract:

Online learning became widespread and fully realized during the pandemic. With the new method of learning came the gamification of some online learning platforms. Previous studies state that Discord is perceived positively as a potential online learning platform. However, these studies were isolated from practice and primarily gathered information from students at the college level. This study aimed to determine how Discord servers can be designed for use by senior high school students and educators. The study was conducted over the course of 3 months through multiple focus group discussions, the flow of which was aided by the ADDIE Model. The research concluded that the full use of Discord's free features, paired with standard operating procedures, can be used to design a server usable by senior high school students and educators in online learning. Future studies can use the created server and test it on a wider audience, and it could also be used to expand studies on Discord, particularly using Discord Bots for educational purposes.

Keywords:

Discord, online learning, learning management systems, gamification, senior high school

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为菲律宾达沃市高中生的在线学习设计不和谐服务器

摘要:

在疫情期间，在线学习变得普及并得到充分实现。随着新的学习方法的出现，一些在线学习平台也开始游戏化。先前的研究表明，不和谐 被视为一个潜在的在线学习平台。然而，这些研究脱离了实践，主要从大学阶段的学生那里收集信息。这项研究旨在确定如何设计 不和谐 服务器以供高中生和教育工作者使用。这项研究历时 3 个月，通过多个焦点小组讨论进行，其中 ADDIE 模型辅助了讨论的流程。研究得出结论，充分利用 不和谐 的免费功能，结合标准操作程序，可以设计一个可供高中生和教育工作者在线学习使用的服务器。未来的研究可以使用创建的服务器并在更广泛的受众中对其进行测试，它也可以用于扩展对 不和谐 的研究，特别是将 不和谐 机器人用于教育目的。

关键词: 不和谐、在线学习、学习管理系统、游戏化、高中

1. Introduction

Online learning platforms are now a staple component of education cemented during the pandemic. The necessity of online learning has paved the way for the gamification of online learning platforms, wherein platforms such as Discord, which are typically used in gaming and niche communities, are now perceived as potential online learning platforms.

Many studies have cited the perceived or potential usefulness as an online learning platform. However, these studies were isolated from practice, as they only took note of Discord's perceived usefulness using surveys (Arifianto & Izzudin, 2021; Liu et al, 2020). This study then created a Discord server that can be used in online learning classes.

There is also a lack of research on senior high school students and their educators. Espinoza et al. (2021) conducted a study with undergraduate participants in the humanities. With most Discord users belonging to the 18 to 34 age range (Discord, 2000; Kumar, 2024), conducting focus group discussions at the senior high school level can be beneficial for future research. Additionally, this research also considered the feedback of senior high school teachers and educators in the creation of the server.

2. Related Literature

2.1. A Brief History of Online Learning

When delivered by instructors to students in a separate physical space, education is considered online learning. Granted, there must be regular and substantive interactions between the two parties, whether synchronous or asynchronous (University of Houston, n.d.). Online learning is not a recent innovation; its creation can be traced back to the 1960s, when a remote learning experience through an interconnected computer

terminal network was introduced by the University of Illinois (Sarkar, 2020)

However, the concept of online learning remained novel to the public until the COVID-19 pandemic changed the way the world looked at education. By 2020, online learning was widespread and fully realized—when traditional learning within the classroom was no longer possible due to health and safety violations. This continued for a time, until some schools partially re-opened through blended learning. Blended learning, as defined by the Department of Education in the Philippines, are lectures that are conducted using both the traditional or “face-to-face” methods with any online distance, modular distance, or television or radio-based Instruction (Hernando-Malipot, 2021). It was only on November 2nd of 2022 that schools in the Philippines shifted instruction back to traditional methods (Magsambol, 2022).

2.2. Online Learning Platforms (OLPs)

Despite the return to traditional learning venues, online learning continues to be a space that the public sees as beneficial. Online learning is less expensive than traditional teaching methods (i.e., less infrastructure, wide course offerings, and standardized quality). From a student's perspective, online learning offers flexibility that traditional learning does not offer, allowing students to learn at any location within their schedules. Gunawardena and McIsaac (2004) posited that distance learning is a more democratic form of education, as it covers all parts of society. For example, many schools in the Philippines continue to offer distance-learning solutions even after the pandemic. Liu et al. (2020) added that there is a strong belief that the commonality of online learning in higher education will increase in the future.

However, the efficacy of online learning depends on proper planning and teaching. Communication is a key

part of education, and as many studies (Liu et al, 2020; Rabe-Hemp et al, 2009; White et al, 2020; Gunawardena and McIsaac, 2004) state, how institutions establish their systems and resources to support distance learning is critical to the success of the program. Many of these studies mentioned the importance of creating virtual spaces that can satisfy the needs of both active and passive learning and allow students and teachers alike to communicate effectively with each other, despite not being in the same space.

Online learning platforms (OLPs) are a way to make online learning more effective. Online learning platforms are spaces in which educational content is provided or live instruction on a particular topic is provided by an instructor (Barone, 2020).

2.3. Difference between OLPs and LMS

It is important to note that there are two different “types” of applications circulating on the Web. OLPs (or e-learning platforms), although similar in intent, are different from Learning Management Systems (LMS).

Learning management systems play a much broader role in online learning than in OLPs. An LMS is a software application that allows educational institutions to create, deliver, and track courses and training programmes. An LMS requires more technical expertise. By contrast, OLPs are web-based systems that provide a comprehensive and interactive learning experience with a more user-friendly interface than an LMS (Goff, 2023).

Blackboard is a widely used LMS. Since 1997, Blackboard has had a range of features that help create, deliver, and manage course content. On the other hand, an example of an OLP is Adobe Captivate. This platform allows for the creation of online courses without programming knowledge (Lim, 2021).

Other examples of OLPs include Zoom, a choice for meetings and webinars; Slack, an instant messaging tool with separate channels for different topics; and Kahoot — A game-based classroom quiz platform (Arden, 2021). Both OLPs and LMS have advantages and disadvantages. For this study, the focus will remain on OLPs, whose gamification considers Discord for use as an OLP.

2.4. Gamification of the OLPs

The term “gamification” is used to denote the application of game mechanisms in non-gaming environments. However, in recent years, the term has become a “catch-all” term for education and training to make learning more motivating and engaging (Caponetto et al, 2014). Discord was initially created as a platform for gamers to convene virtually and play games together. Discord is a one-such “gaming” application that is now considered in non-gaming environments, particularly in education, as it has instant messaging features built in, along with streaming and screen-sharing capabilities such as video platforms that are also considered OLPs such as Zoom (Arden, 2021).

2.4.1. Discord as an OLP

A disadvantage of distance learning is the “isolation” that students might encounter in an online classroom. According to previous studies, a student’s learning environment and interactions with their teachers and classmates can also influence student education (Rabe-Hemp et al, 2009).

During the pandemic, many students turned to Discord to communicate with their peers, especially in an environment where face-to-face communication was deemed impossible for safety reasons (Rogers-Whitehead, 2021; Ayob et al, 2022). It was easy for students to adapt to their academic needs, as many students were gamers themselves and frequently applied outside school (Ayob et al, 2022).

The active presence of students in Discord during the pandemic paved the way for the introduction of studies related to the use of Discord as an online learning platform. Discord, with its free use and comprehensive features, poses a potential avenue for host courses and classwork.

2.4.2. Considerations when Using Discord

In this research, it is important to know how Discord is used outside of online learning, especially when the target audience is students at the senior high school level. Considerations when using the platform will aid research in the direction in which it will design the server.

In an article published by CNN in 2022, parents raised concerns about their teenage children being exposed to online predators through the platform (Kelly, 2022). The NBC also published a similar article in 2023, wherein private messages from unknown strangers aim to entice the youth to access non-safe-for-work (NSFW) servers that aim to exploit these teens (Goggin, 2023).

In turn, Discord has launched the “Teen Safety Assist” initiative, with features that are default enabled in teen accounts to protect teens through proactive filters and alerts (Discord, 2023). As part of this initiative, “Discord Safety Alerts” will notify a teen whenever an unknown account attempts to reach out through discord. The teen will then be immediately provided with tools to reject the message and block the account, as well as provide the teen with additional resources to know and understand the dangers of the unknown outreach. Discord also has a warning system that takes note of blocked accounts and prevents them from gaining access to the platform if there are multiple reports on the account (Discord, 2024).

2.5. Designing Spaces on Discord for Online Learning

With these considerations in mind, rules that involve setting the correct age in the account and utilizing the school’s email domain when creating the account will be added to the Discord server created in this research.

Additionally, it is important to note that a problem with most of the existing discord studies is their lack of insight into the platform’s practical use.

A study conducted by Arifianto and Izzudin (2021) on students' acceptance of Discord as an alternative online learning medium reported a positive relationship between students and Discord. Students perceive Discord as a favorable alternative medium because of their positive perceptions of its features and ease of use. However, the study was conducted through a simple survey and did not consider the opinions of educators, who form half of the end users of online learning platforms.

Liu et al. (2020) also highlighted that the main limitation of their study was that their analysis of the training platforms was conducted in isolation from practice, which made the researchers incapable of drawing conclusions on how the platforms were evaluated by students and teachers.

Espinoza et al. (2021) concluded that Discord was a suitable e-learning platform. However, the study focused on a sample of university students, half of whom were male and the other half were female.

It can be ascertained that Discord can be an online learning platform, with studies highlighting its usefulness to students. However, in most of these studies, the conclusions were mainly sourced from the perceptions of the participants and isolated from practice. In one study that tested Discord's design, the sample focused only on student feedback.

Hence, this study focused on creating a Discord server for online learning for senior high school educators and students, as both sets of users would use the platform simultaneously in a classroom. The choice of senior high school students as samples in this study was to incorporate Discord's teen safety features in the platform's creation.

Familiarizing the components of an online course and a Discord server is important in creating a Discord server for online learning, as it can guide a server creator on which areas to focus when designing.

2.6. Basic Components of an Online Course

Owing to the demands of the pandemic and the innovation of modern technology, online learning has become a ubiquitous part of modern society. How distance learning is delivered varies, but most online courses contain five basic components (Claybourn, 2024). For the purpose and limitations of this study, the research was based on the following elements: Course Materials, Course Structure, and Assignments and Group Activities.

Course materials include any source material that an educator must provide to students. Some educators provide reading materials, podcasts, slide presentations, and instructional videos (Claybourn, 2024).

The course structure, on the other hand, can either be asynchronous or synchronous. Asynchronous learning is any type of learning that a student can undertake on their own schedule and does not require consistent real-time interaction with an instructor. This differs from

synchronous learning, in which students are typically required to attend scheduled classes with their instructors (Coursera, 2023)

Assignments and Group Activities involve students submitting their work to educators, and in this case, submitted digitally.

2.7. Basic Components of a Discord Server

When creating a Discord server, the designer must be familiar with its basic features. In this study, the following features were used: Roles, Moderation, Text Channels and Voice Channels.

Discord has a permission system that allows users to have specific privileges and functions on a server. In some cases, permissions can be as basic as giving users the ability to react to messages, while others grant users more administrative actions over a particular server. To create these permissions, Discord has "Roles" that can be assigned to users within a server. Permissions within each role can vary at both the server and channel levels. When a server is created, only one premade role is present: everyone. This role defines permissions for users in the server, even if they play no other roles assigned to them (Discord FAQ, 2022).

Recently, Discord released safety and moderation features to ensure appropriate use of the platform. When a server is created, moderators can visit the "Moderation" setting, which allows administrators to automatically respond to profanity, suspected spam, and explicit images. The Moderation tab also has an "Audit Log" feature that includes all the activities being performed on a server.

To complete a server, Text and Voice Channels were created to facilitate engagement and discussions for the community currently using the platform. Discord defines Text Channels as the channels where text communications take place, distinguished by the pound (#) sign.

On the other hand, voice Channels are channels where users can connect and chat with one another. This is indicated by a speaker icon when passing through a server for the first time. Voice Channels are also capable of video chat, screen-sharing, and streaming. An embedded text chat is also available on Voice Channels, which allows users to send message content without interrupting the speaker (similar to the embedded chat on platforms such as Zoom and Google Meet).

3. Methodology

This study was conducted qualitatively through focus group discussions over the course of 3 months.

This study involved the participation of the following individuals in multiple focus group discussions:

1. Humanities and Social Sciences (HUMSS) Educator (1)
2. Science, Technology, and Mathematics (STEM) Educator. (1)
3. Various Senior High-school (SHS) students of

HUMSS and STEM backgrounds (6).

The participation of students and teachers with varied backgrounds at the senior high school level allows for a plethora of experiences in the same Discord server. Each participant had had experience navigating a Discord server before—from as brief as a year to as long as five years or more. The choice of year level is based on the youngest average age of Discord users, which coincides with the age range of senior high school students (Discord, 2020).

During the study period, the participants used Discord through various platforms such as a browser, mobile device, desktop, or laptop computer.

These focus group discussions were conducted at several stages of the research (see Figure 1). The stages were guided by the ADDIE Model of Instructional Design and the server layout was guided by the principles of Design Theory (Fiore, 2023).

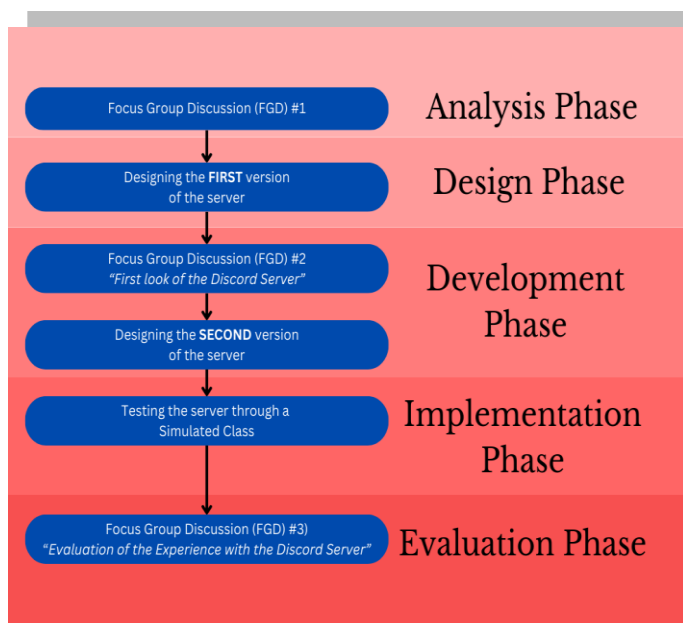


Figure 1. Methodology (by the authors)

The ADDIE Model is a generic process that is traditionally used by instructional designers and training developers. It is a linear process that originally consisted of five stages: Analysis > Design > Development > Implementation > Evaluation (Bouchrika, 2023).

The ADDIE model fits this study because instructional design is integral in education, and new concepts such as gamification are said to have an impact on the learning process, as technology continues to influence various instructional design factors, including both learners' and instructors' beliefs about knowledge, instruction, and learning (Warren et al, 2014).

Only the Design and Implementation phases were void of any focus group discussion between the researcher and the participants, as the former focused on the creation of the actual server that was tested in the study, and the latter focused on the simulated class that aimed to "put into practice" the newly designed Discord server.

4. Results and Discussion

4.1. Analysis Phase

The responses were coded based on the similarity of their answers, and the following points were extracted.

In an online learning platform, the participants wanted to see the following features:

1. User friendly interface (5)
2. Features to help monitor student/teacher progress (4)
3. Real-time communication/ability to contact instructors directly through the platform (2)
4. Flexibility to cater to both student/teacher needs in education (2)
5. Device adaptability (2)
6. Engaging platform/activities (2)
7. Ability to download/upload material (1)
8. Ability to interact with peers (1)

The participants then highlighted the following to improve on their existing online learning platforms:

1. Better interface to monitor student progress (3)
2. A cheaper online platform, maybe using the freemium model (1)

Currently, the participants' online classes are conducted through either:

1. Google Classroom (4)
2. MS Teams (5)
3. Blackboard (5)
4. Facebook Messenger (2)

These are the sections that the participants first looked at when they opened their respective OLPs.

1. Announcements (5)
2. Student backlog (5)
3. Current "Room" Attendance (1)
4. Functionality of the video and audio (1)

Currently, all of the participants' OLPs do not have moderation in place.

4.2. Design Phase

Using the responses of the participants, the researcher created a "skeleton" server that uses Discord's text and voice channels, as well as its moderating features. All tools used to build the server were made possible only by the free features already available on the Discord.

One ad hoc note was that the participants provided that their learning management systems were grouped by subject, not by class. This prompted the researcher to create a server that grouped one class together, with the subjects grouped into text and audio channel categories. Access to specific channels is limited depending on their role.

The initial build of the server focused on three features: roles, channels, and moderation.

The roles created serve to limit access to certain parts of the server. The highest role in the server is reserved for school information technology (IT) administrators

(admins). This role grants IT admins full control over what goes in and out of the server and may serve as a backup in case teachers do not have the time or capability to modify the server depending on their teaching needs.

The next level of access belongs to class advisers. Class advisers have access to homeroom channels and the ability to view all dedicated channels for each subject in the server.

Subject teachers, on the other hand, all have the same level of access; they each have full control over the dedicated channels for their assigned subject for that specific block.

Student admins are student leaders in a block, and their level of access may help class advisers and subject teachers alike to moderate students by giving them the ability to mute students who may disrupt class and create pinned posts and announcements in student organizations and homeroom channels.

In terms of channels, the Discord server has several channels that are also grouped in channel categories. Each channel has a different permission option for each role. For example, teachers can create pinned posts on lecture materials and assignment channels, whereas students can only leave messages under the “chatbox” of the meeting rooms. Teachers can also move students to and from their own voice channels.

Teachers have a dedicated category to answer any of their troubleshooting or navigation concerns on the discord platform. During the focus group discussion, the participants responded that they looked for a user-friendly interface that both the students and teachers could use. As students are more likely to be acquainted with Discord than teachers, a dedicated channel category is created for them to receive guidance on how Discord can be used in their classes.

Students also have dedicated categories in which they can discuss with their peers without permission restrictions. Students can also use the voice channels as a “Study Room” so that they can play music or discuss with their group mates about their tasks even outside of class hours. The moderation and safeguarding features of Discord are still available in student-only channels.

In terms of moderation, members of the server must have a verified phone number on their discord account before entering the server. The server is also equipped with Discord's AutoMod feature, which allows it to moderate content without requiring an individual to moderate the content. Teachers can still flag questionable activities by students, but the AutoMod feature is available so that swearing, spam, suspected spam content, and explicit images are automatically blocked from the view on the server.

4.3. Development Phase

An additional group discussion was conducted by the researcher after the participants were granted a “first look” at the discord server. This “first look” was not guided, and the participants were given an hour to

intuitively explore the server and see what they noticed without guidance.

In general, the reception of the participants was mostly positive, with praise for the channel categories and subchannels. Both student and teacher participants pointed out that the server was easy to navigate. Both student and teacher participants found that the layout was useful for both synchronous and asynchronous classes.

One notable feedback they commented on the final version of the server was the length of the channel names. Additionally, teachers requested that a separate channel be created for extremely important announcements (separate from “assignments” or “lecture materials”). The teacher participants also requested that a voice channel be created for one-on-one consultation with the teacher. Finally, the student participants also asked for a Frequently Asked Questions (FAQ) channel that both students and teachers could access before and while using the server.

4.4. Implementation Phase

The researcher then edited the server to incorporate new text channels that address FAQs, rules and reminders, warnings for rule-breakers, and notices for educators. Two voice channels were also added to each subject, serving as waiting and consultation rooms for educators and students to communicate during off-hours.

The channel names were also shortened, where the channel categories contained the subject name, while the subchannels were only named after the type of activity to be done. For example, “STEM 101” contains an “assignments” text channel, instead of a “stem-101-assignments” channel.

The new channels also contain additional content that provides more context on how the server can be used. The “FAQ” for both general server members and teachers and the “rules-and-reminders” channel contain information that could be useful to new joiners.

The channel information added to the server was created using Discord's “Markdown Text” feature, which allows the server creator to add headings as well as bold, italic, and underlined text to provide better emphasis on announcements. In creating announcements, design principles, namely, hierarchy and contrast, are used to make the flow of information easier for the viewer.

The students and teachers then tried using the server in a simulated class.

4.5. Evaluation Phase

The evaluation phase resulted in positive reception from both student and teacher participants in the study. The participants highlighted that the newly created channels and explainers within each channel were helpful in navigating the server better with less guidance. The new strategic placement of the channels was found by the participants to be helpful when used in their simulated class. One limitation that Discord currently does not have is its ability to record video calls without

the use of an external application. This was the only pain point relayed by the teachers during the study.

Overall, both the teachers and student participants found Discord useful in their synchronous and asynchronous classes.

5. Conclusion

To design a Discord server for senior high school educators and students, the server creator must fully utilize Discord's basic features, including, but not limited to, roles, moderation, text and voice channels, pinned posts, threads, and markdown text formatting.

These features should be paired with standard operational procedures (SOPs) that would help keep everything organized for both students and teachers. In this study, the following SOPs were recommended:

1. Channel roles should provide administrative and moderation controls for teachers and limited and restricted access for students unless they are on student channels.
2. Channel names should be kept short and concise for ease of navigation.
3. Channels (text or audio) should be divided based on the subject
4. A frequently-asked-questions (FAQ) page should be made available. The FAQ page can be subdivided into FAQ for Teachers and an FAQ for Students.
5. This FAQ page can serve as a guide to the rules and SOPs in the server, including the moderation of certain curse words, hate speech, and bullying.
6. Each channel (text or audio) is specifically dedicated to a certain topic.
 - a. Assignment channels are used solely for assignment discussions, whereas a separate dedicated channel can be used for watercooler conversations among students (and/or teachers).
 - b. Announcements created should use Markup Text and principles in Design Theory to create more readable and comprehensible announcements for the viewer.

Discord can be used in conjunction with other platforms to facilitate learning. While the free version of Discord does not allow large files to be transferred, other cloud-based file-sharing software (such as OneDrive or Google Drive) can be used to fill this gap. OBS Studio was used to record the video lectures.

This study contributes to studies related to online learning and the use of Discord as an online learning platform. Its contribution stems from its methodology and the chosen participants, as discord was used in practice by educators and students alike at the senior high school level.

Most studies conducted on the subject matter have been isolated from practice or conducted among collegiate students.

6. Limitations and Further Study

This study is limited to exploring online learning platforms (OLP), which differ from learning management systems (LMS). This limitation, although it has not barred the platform from conducting online classes, can be an avenue to conduct more research into what Discord can do.

This study was limited to the collection of data from senior high school students and educators in Davao City, the Philippines.

This study was conducted for a limited period of time, and to save research time, the participants were allowed to use their personal email addresses to log in on Discord. The researcher recommends that future research only requires school email addresses to log in to the Discord. Alternatively, a study can be conducted to compare students using their personal discord accounts as opposed to school-only discord accounts for online learning.

A recurring point that teachers and students alike have brought up is a method to visibly see the backlog and grade progression of students. This type of feature is exclusive only to an LMS, unless a Discord Bot is created specifically to cater to the needs of teaching and learning. Discord Bots are automated programs that help enhance a server's functionality in various areas, such as moderation, server management, entertainment, and other utility functions (Malinowski, 2024).

Additionally, more studies that use or test the sample Discord server are beneficial; for example, in public or smaller private schools, as Discord's free feature makes it possible to use the server without any additional payments and may likely serve as an alternative online learning platform for these schools.

Lastly, it would also be interesting to see if the study can be replicated on other platforms that are not traditionally used or dedicated to education, such as Facebook and Facebook Messenger.

Author Contributions

Conceptualization, A.P.T.; methodology, A.P.T.; software, B.A.; validation, A.P.T.; formal analysis, B.A.; investigation, B.A.; resources, A.P.T.; data curation, A.P.T.; writing—original draft preparation, all authors contributed equally; writing—review and editing, A.P.T.; visualization, B.A.; supervision, A.P.T.; project administration, A.P.T. All authors read and agreed to the published version of the manuscript.

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Institutional Review Board Statement

The study was conducted in accordance with the Declaration of Helsinki and approved by the Research Ethics Review Committee.

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

Data Availability Statement

The data presented in this study are available on request from the corresponding author.

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Conflicts of Interest

The authors declare no conflicts of interest.

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