



## EXPLORING ONLINE COMMUNICATIVE ACTS OF A TEACHER IN A SECONDARY SCHOOL SCIENCE CLASS IN TURKIYE: AN ANALYSIS OF USERS' PRACTICES AND PERCEPTIONS

**Ahmet Durgungoz<sup>i</sup>**

Mersin University,  
Turkiye

### **Abstract:**

This qualitative case study explores how a teacher positions himself in a social networking platform to create a learning environment in a secondary school science class in Turkiye. Sixty-six students' and their science teacher's interactions on a social networking platform have been observed for one year and nine months. Online and face-to-face interviews, online participant observation, and documentation were used for data generation during the first nine months. The data was analysed with an inductive thematic approach. The results revealed that the teacher created a sustainable online learning platform through four main communication acts: Initiative, Reflective, Supportive, and Informative. In particular, the teacher's initiative and supportive behaviours in the online platform increased student engagement and created a sense of care. Regarding the student's engagement, the teacher's communicative acts' informal nature is perceived as more important by the students than the type of communication itself. It was underlined that there is a need to redefine middle school teachers' presence in a social media platform where the effectiveness of learning increases if they become an `insider` rather than an instructor.

**Keywords:** teacher-student interaction; social media; teacher-student relationship; digital communication

### **1. Introduction**

#### **1.1 Teacher/student interactions in social networking platforms**

The nature of teachers' interactions on an interactive online platform with students is essential in understanding how a successful online experience can occur (Kern, 2006). Considering that using social media in education is still a novel idea, the teacher's role in such new environments might usefully be redefined and evaluated (Comas-Quinn et al., 2012).

---

<sup>i</sup> Correspondence: email [adurgungoz@mersin.edu.tr](mailto:adurgungoz@mersin.edu.tr)

A few studies in the literature have explored teacher/middle-school students' online interactions on social networking platforms. The majority of the studies were conducted in higher education (e.g., H. Cho et al., 2007; M.-H. Cho & Kim, 2013; Crook & Cluley, 2009; Richardson & Ice, 2010; Richardson & Swan, 2003; Shea et al., 2006; Shi, 2010; Tichavsky et al., 2015).

Strudler and Grove (2013) explored the use of Google+ in online undergraduate teachers' education. The authors compared the university's virtual learning environment (VLE) with Google+. The authors reported that Google+ enabled the instructor to reflect a high social presence level compared with the VLE platform. The students favoured using Google+, giving them a sense of "connectedness" (p.15) with their peers and the instructor. According to Lee et al. (2023), there is a notable and positive link between social influence and the behavioural intention of distance education students to utilise a social media tool such as WhatsApp as a means of academic support. This suggests that when students firmly believe that respected individuals such as their teachers consider the use of WhatsApp essential for learning, their tendency to incorporate it into their studies becomes stronger, and vice versa.

One of Turkiye's earliest Facebook studies was conducted (Baran, 2010). The participants reported that the Facebook group allowed learners to know their peers better. The teacher's online presence was valuable in terms of academic and social aspects. As a formal learning platform, Facebook was also used in another study to support undergraduate students who were away from university for an internship (McCarthy, 2010). The author reported that using Facebook allowed the teachers to provide the necessary support and encouragement the students might need while they were away from the university. It was also reported that the students found their peers' support more valuable than the instructors' help.

Asterhan and Rosenberg (2015) commented that most studies considering teacher/student interactions were conducted in higher education, where more formal exchanges (feedback, reminders about deadlines etc.) were considered encouraging for undergraduate and postgraduate students. Although the online interactions enhanced teacher/student relationships, the study reported that there could be a danger of losing teacher status if the interactions become too personal (*ibid.*). The authors also underlined a significant difference between higher-education students' and secondary-school students' needs, so a different approach may be needed to examine the teachers' role in online platforms with secondary school students.

Yang et al. (2014) conducted a small-scale study with seven middle-school students. The authors emphasised the importance of informal exchanges between the teachers and the students to build a personal relationship. It was stated that informal exploration enabled the students to enrich their knowledge about the subject matter being taught. The authors suggested that social networking sites should not be an extension of formal classroom learning. Instead, they foster the students' interactions and create a more functional group of learners. The findings suggested that teachers should

learn about the students' interests before participating in an online platform. They should be open to informal conversations to relate their learning and everyday experiences.

### **1.2 Theoretical foundation of the study**

Despite being established in face-to-face communication, social presence theory still holds significant relevance, particularly within online education (Cui et al., 2013). This theory, with its emphasis on individuals' ability to present themselves as 'real' within a digital space, provides the analytical lens through which our research examines the complexities of teacher-student interactions on the social media platform Google+.

Our study adds a distinct layer to understanding online teaching dynamics by positioning the teacher as an 'insider' within the digital community. This perspective challenges the traditional narrative of teachers as outsiders or authoritative figures, instead showcasing them as integral members of the learning environment. Within this setup, the teacher navigates the digital space similarly to a student, opening up a fresh perspective on the subtleties and depth of online educational engagement.

### **1.3 Research questions**

The studies give general sets of actions teachers take on social networking platforms. It is possible to see statements such as 'providing feedback', 'encouraging students', 'reminding about deadlines' and 'questioning' positively correlated with the student's relationship with the instructors. In contrast to the preponderance of existing literature, our study offers a unique exploration from the teacher's perspective. By examining the nuances of a teacher's interactions within a digital environment, we delve into an aspect of digital education that remains under-researched in a secondary school context. By focusing on the teacher's role, our research highlights the importance of the educator not just as an authority figure but an active participant in the digital learning community. This shift in role perception can significantly affect student engagement and overall learning experience, making our study a valuable contribution to the ongoing discourse in digital education.

The aim of this study is, therefore, to answer the following research questions:

- 1) What was the teacher's participation frequency in the social networking platform outside school hours?
- 2) What was the nature of the communication acting the teacher used on the social networking platform when interacting with secondary school students outside school hours?
- 3) Whether and how the teacher's use of communication channels on the platform influenced the students' understanding of their relationship with the teacher.

## **2. Methods**

The teacher will be referred to as Bora. First, Bora was informed about the research aim and asked to use a social media platform for five months. He and the students wanted to

use Google+ (which was shut down on 2 April 2019) as they thought it was “cleaner” than other platforms such as Facebook and Twitter. As teachers have a heavy workload, he was asked to use the social media group as an environment where the students mainly remain active while facilitating and encouraging them to carry out activities.

### **2.1 Student participants and time range**

Our sample consisted of a diverse group of 66 students from a secondary school in the province of Istanbul, Turkey, with a balanced gender distribution: 35 female and 31 male students. The participant students' ages ranged from twelve to thirteen. It is considered that this diversity provided a rich and varied source of data that underpins the findings of our study.

### **2.2 Ethical considerations**

Three phases were completed before conducting the research. First, permission from the University of Nottingham's ethics committee was obtained by submitting necessary documents such as CRB clearance and drafts of the participants' information sheet and the consent form. Second, permission from the Turkish Ministry of Education to conduct research in Turkish schools was obtained. Third, the information sheet was distributed to the governors, the teachers, the students and the parents in the selected school. All the students, teachers, parents and governors were aware of the researcher's presence on social media platforms.

### **2.3 An overview of data generation and analysis**

As exploring teacher/student interactions on an online platform is a complicated task, there was a need to employ multiple research methods to make reliable and valuable interpretations of the whole picture. Hence, a triangulation of methods was needed. This study was designed to explore the research questions from three perspectives: online participant observation, online documentation, and interviews. The four main phases can be identified in the data generation and analysis in Figure 1.

The four phases are interrelated, so the data generation and analysis were performed within all these four phases. The coding and theme identification process was also carried out with a Turkish-English-speaking researcher, which increased the research's reliability.

The teacher's use of social media spanned almost two years, during which we meticulously gathered and analysed data from the teacher's Google+ interactions. We concentrated our analysis on the initial nine months as this timeframe exhibited the multifaceted teacher-student interactions. The teacher's social presence was solidified during these initial months, and the foundation for subsequent interactions was established. A critical aspect guiding our decision was the concept of data saturation. After the first six months, we observed that new data did not contribute additional insights or themes. Moreover, pragmatic considerations such as resource constraints also influenced our decision to confine the study to the first nine months.

## 2.4 Data analysis

Data analysis was carried out continuously during the data-generation process. Descriptive and thematic content analyses of the posts, comments and interviews were conducted. Three data sources were used in this second case to answer the research questions. These were the teacher's actions on the social media platform, the teacher's interview results and the students' interview results. The analysis of the teacher's communicative acts and the interview results shed light on the research questions. Table 1 presents the data sets used to answer the research question.

In alignment with the principles of an inductive thematic approach (Braun & Clarke, 2006), we carried out our data analysis with a focus on the distinctive elements surfacing from the collected data. This inductive strategy involved a thorough and iterative engagement with the data, wherein codes and themes were identified from within the data, as opposed to the imposition of pre-existing frameworks or theories. Given that our participants were students raised in Turkish culture, they brought with them unique cultural practices in their interactions. Therefore, utilising an inductive thematic analytic approach provided the flexibility to uncover these varying communication styles.

## 3. Results

### 3.1 The timings of the teacher's use of the social media platform

As this study explores the teacher's communicative acts outside school hours through social media, it is crucial to find how the teacher communicated with the students in out-of-school time. Figure 2 shows the distribution of the number of posts per day that the teacher became active on the social media platform. Notably, Bora used the platform on weekends, too. The highest number of shares was made on Saturdays; Sundays in second place following Fridays.

When he was shown these graphs at the end of the term, he stated:

*"I did not know that I was more active on the weekends. I guess I didn't see it as work. It became a habit for us to share the things that we do on weekends, it is sometimes about lessons, sometimes about leisure things like sharing some photos of a place I have visited."*  
(Second Skype conversation)

Bora also used the platform on weekdays. The hourly map outlines how this activity permeated his daily routine. It should be noted that Bora works from 7 a.m. to 12 noon, so whilst he shared posts within the class, he continued to be active after school hours, as shown in Figure 3.

Bora shared the students' photos while engaged in an activity in the classroom. He also shared images of a book or the blackboard, which contained important information about the subject matter being taught. When Bora was asked why he shared such posts on the social media platform during the class, he stated that:

*"I generally shared images, videos, or links about the lesson. The students like me to share their photos while doing a task assigned to them in the class. I sometimes reward the students who do well in the class by sharing their pictures and writing something like 'you are great'. They are proud to have their photo on the platform, but more so if I share it."*

When school finished at 12 noon, Bora continued to be active on the platform. Notably, most of his interactions with students occurred during out-of-school hours.

### **3.2 Thematic analysis of the teacher's posts and comments**

This section will present how the teacher engaged with the platform and the students. Table 1 summarises how the teacher engaged with the platform and the students through sharing posts (n=342) and making comments (n=336). Four main communicative acts have been identified: Initiative, Reflective, Supportive and Informative. The left-hand column identifies the four themes representing the nature of the teacher's language. Each of the four themes has codes which define the themes (centre column). Each theme was divided into two categories: posts and comments. The percentage of the posts and comments coded in the themes is in the right-hand column.

### **3.3 Initiative Interactions and students' changing attitude towards the teacher**

First, most of the teacher's posts (38%) and comments (48%) tended to be stimulative to initiate a conversation with the students. The images and videos embedded in the posts (1-a) and a text that has an informal nature encouraged the students to converse with the teacher through the comment box. The comments (1-b) might be considered a more direct invitation for the students to communicate with the teacher. The language in the comment sections has a personal and informal manner. For instance, *'What have you found, my friend? I wonder'*, *'Great information, explain a bit more please, I will call you master from now on'*, *'Shall we discuss this together as you are also planning to fly, I guess'*, *'What kind of game you are playing? It seems very exciting'*.

The students expressed how strange it was to chat with their teacher informally on social media. Overcoming the issue of formality seemed to be a threshold for the students, and it was a significant change considering the culture in which the students lived. S4 stated:

*"I showed my mum that I called the teacher 'my friend' on our Google+ group; she got angry, wanted me to remove it and apologise (laughs), but I then showed her the teacher's and others' comments, they were also like that so she calmed down."* (S4)

S8 said:

*"I don't know; I didn't know how to reply to our teacher. I thought that I needed to answer a question or something (laughs). I mean I could not just chat with my teacher in that way (laughs). Then I got used to it and made many comments later."* (S8)

She underlined the way that the teacher wrote the comments. She was asked what she meant by 'in that way', and she said that:

*"We usually didn't talk so much in the class, our teacher was strict, we were a little bit afraid (laughs) but we chat a lot now because our teacher wants to chat like that like we are the same age." (S8)*

Bora also admitted that he could not easily make jokes in class or use informal language. The interviewed students confirmed this, but when they talked about Bora being strict and serious, they always used the past tense ('our teacher was strict') as their perception of Bora seemed to have been changed.

### **3.4 Reflective interactions and students' level of engagement**

Second, although an essential proportion of the posts (36%) referred to the classroom and outdoor activities, the teacher rarely referred to the classroom activities via comments (5%). He generally posted photos or videos of group students doing a task in the classroom. This was done to keep a record of the classroom activities, as Bora explained:

*"At the end of the year, we have an online portfolio; this was beneficial for the students and me. The parents can also see what their children do in the school. They (the students) were able to remember what they did before the exams."*

Some students also commented or liked (+1) these posts. They were generally interested in what they looked like or were proud of what they had accomplished: *'Is this voice really mine 😊, 'Where is my face, I can't see it 😊, 'our group is the best!'*

Although the students started to participate in the social media platform in a more interactive way than Bora wanted, he continued to share posts. The students regularly exchanged comments that were in an informal and conversational form. As the conversations can be seen in Table 3, Bora shared two images that reflected his character on the Galata Tower roof, which is a famous historical place in Istanbul where his character had his first flying experiment in the seventeenth century. He shared this post and a text that was informal to encourage the students to make comments.

Bora's use of language and his posts seemed to make the activity enjoyable for the students, which gradually increased their participation. The comments showed that the students had a conversation with their teacher and learned what his character did in science. Some of them also linked this post and their character to chat with the teacher. For instance, one student whose character wrote an encyclopaedia thought about adding this historical event to his book (S12). Another student offered help as she was a 'doctor' (S15), and another student thought that he could complete his map with the help of this flight (S14). This shows that Bora's participation encouraged the students to be active and reflect on their in-class work during out-of-school hours via the social media group.

### 3.5 Supportive interactions and a sense of care

The teacher adopted an informal interaction style to encourage the students that was principally done via the comment box (36%) rather than posts (5%). The teacher liked and re-shared the posts of the students. This was one way to reward individual students who participated in the social media platform's learning activities. Direct support was given to them via the comment box. Bora appreciated the students who communicated with each other about a topic. Rather than encouraging individual work, more supportive language was used when interacting. For instance, *'Bravo, keep on, I am following you'*, *'It is exciting...'*, *'Congratulations ...'*, *'You are doing very well'*, *'Keep sharing your readings with us, they are interesting'*.

His *supportive* interactions, such as liking, re-sharing, and commenting, increased his social presence, motivating the students. Bora commented:

*"If I were not in the group, they would not be that active; sometimes I felt that they shared many things because they knew that I was seeing their posts, re-sharing and liking them. They were counting who received how many comments and likes from me."* (Bora, Interview 2)

When Bora was asked why the students gave importance to his liking, re-sharing and commenting on their posts, he said:

*"I cannot explain it. I don't know the answer, but I guess they perceive social media differently. When I say 'Well done' to one of the students in the class, this might not have the same influence as it might have on social media. As I said, they counted how many times I re-shared their posts in my profile."* (Bora, Interview 2)

As also explained in the previous section, Bora believed that the nature of social media might have changed the perception of his prompts. Although verbal rewards in a classroom context could be associated with comments on a social media platform or the teacher's liking might be similar to drawing stars in the students' notebooks, the contexts in which these activities occur might significantly influence the received joy. The teacher's informal, supportive participation encouraged the students to own the social media group and increase their activity level.

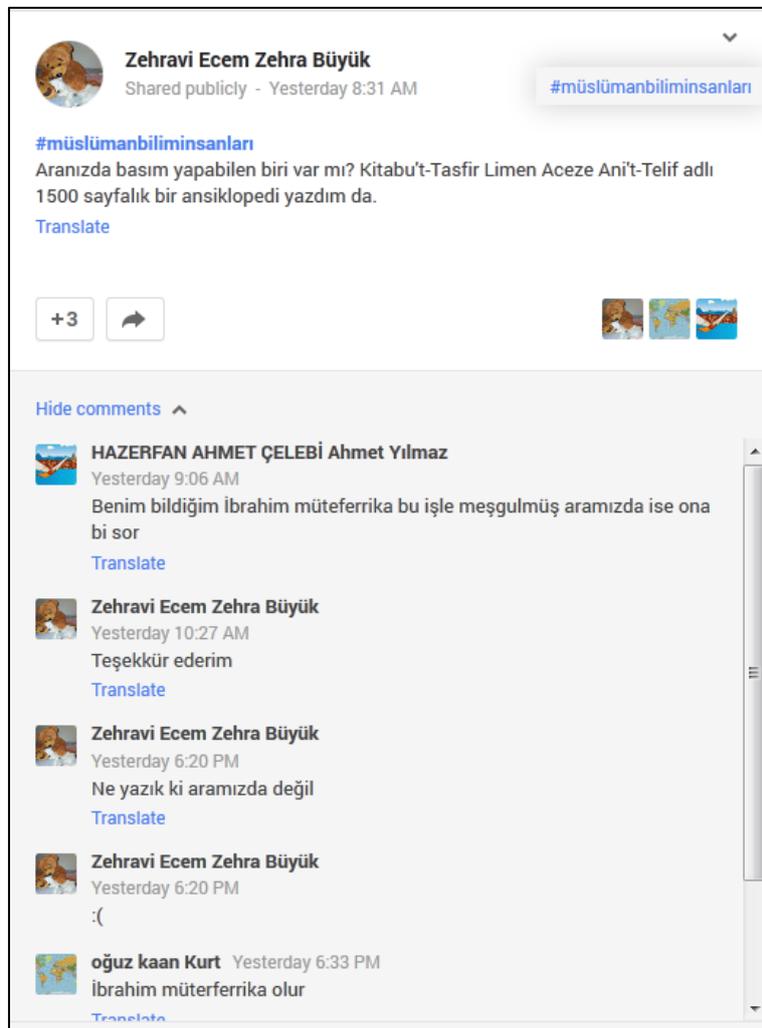
### 3.6 Informative interactions

These interactions occurred mainly via posts (21%) rather than comments (7%). The teacher posted videos, images and links related to the week's subject matter. Whilst some of the videos were created by the teacher (his voice with some photos), most were uploaded from other sources such as YouTube. Informative posts showed that Bora used the social media platform for teaching purposes. On the other hand, the informative comments were generally in the form of reminders: *'Don't forget the hashtag'*, *'Try to find some images about ...'* although these were rare.

### 3.7 Peer interactions

While this study primarily focused on the teacher's behaviour and interactions within the Google+ platform, it is also worth shedding light on the nature of activities that occurred among peers. One such illustrative example is the role-play activity that the teacher initiated. In this engaging exercise, the teacher and the students selected historical scientists, embodying their roles in online interactions. They communicated on the platform as if they were eminent figures, each contributing to a discourse on the evolution of scientific thought. The post below illustrate one of the many peer interactions within the Google+.

In one of these posts, one of the students asked: *"Is there anyone who works in the editing and publication sector? I have just finished my new encyclopaedia, which is around 1500 pages"*. This type of post that the students shared showed similarities with the teacher's posts. The students seemed to adopt a way like the teacher's interactions with them.



**Figure 1:** A snapshot of a student's post on Google+

**Translation:**

<i>(The student directly refers to her friends in the post)</i>
<i>S15: Is there anyone who works in the editing and publication sector? I have just finished my new encyclopaedia which is around 1500 pages.</i>
Comments:
<i>Bora: As far as I know, Ibrahim Muteferrika was engaging with this job. If he is with us, you can ask him.</i>
<i>S15: Thank you.</i>
<i>S15: Unfortunately, he seems to be not here.</i>
<i>S15: L</i>
<i>S28: I am here.</i>
<i>S28: I can print it if you still want.</i>

Bora made the first comment on the post, which aimed to involve one student in the conversation. He referred to the student whose scientific character's work was about the printing press, but the student stated, 'unfortunately he seems to be not here'. Then, other students responded to her later and offered to print her book in their printing house. This exchange was one of the first in which the students started to chat with one another.

After the second week, intense interactions were seen among the students whilst the teacher made supportive comments. It was seen that the students seemed to try to initiate a conversation with their peers. In the last two weeks of the activity, almost all the students participated in the activity in a way that involved others in a conversation.

**4. Discussion and Conclusion**

This study aims to understand the teacher's role as a participant in a social networking platform, Google+. Three research questions were set out in this study. The first research question was: 'What was the type and frequency of the teacher's participation on the social-media platform outside school hours?' This question was explored through the teacher's activity level, and the timings of his use of social media were analysed. The second research question considered the nature of the teacher's communication acts when interacting with the students through social media. The third research question was: 'Whether and how did the teacher's online interactions influence the students' relationship with the teacher?' Responding to this question, the students' opinions and a detailed analysis of teacher/student interactions were examined. These findings will be interpreted and discussed in this section.

It was seen that there were various types of teacher intervention, namely initiative, reflective, supportive, and informative. The teacher's interventions must be distinguished from the common understanding of online tutoring where the instructors provide feedback, remind about deadlines, and comment on students' posts. These four categories may have influenced the creation of an online learning community; it can be claimed that teacher/student relationships might be more affected by the 'Initiative' and 'Supportive' nature of the teacher's interactions with the students.

In this case, the teacher occasionally acted as a learner (e.g. participating in a role-play activity) and projected an informal personality through his comments and posts, which fostered a more positive attitude. In particular, the initiative and supportive interactions were significant for the students' engagement. Initiative interactions encouraged the students to communicate with Bora around the learning activity. Instead, supportive interactions encouraged the students to communicate with one another on the social media platform.

#### **4.1 Change of medium influences teacher's behaviour and the perception of students**

This study also showed that the social media platform helped the teacher adopt more informal practices and facilitated conversational language. This behavioural change resulted from changing the teacher's environment and the students used to communicate. For instance, Maor (2003) conducted a qualitative study to examine the instructor's role in developing interactions on a virtual learning platform. She reported that the instructor exposing his personal life encouraged the students to become more informal and created a sense of belonging. In this study, the teacher's interaction with the middle-school students on social media occurred differently.

Four main interaction channels were identified: the teacher sharing a post, commenting on the students' posts, re-sharing the students' posts, and giving a 'like' to the students' posts. These interactions seemed to invoke different feelings. For instance, the students perceived some specific behaviour as caring. Bora's re-sharing of the students' posts and liking (+1) seemed to create a feeling of being cared. The students reported that the teacher noticed them and that their work was appreciated and rewarded. Re-sharing and liking might be a different form of classroom rewarding in which a teacher praises a student's work in front of his/her peers.

Teacher caring has an important impact on middle-school students' motivation (Wentzel, 1997). It has been emphasised that whilst teacher caring might occur in different ways, the more the teacher engages with students' work, the more students develop a positive attitude towards the teacher (Teven, 2007). In this case, the teacher's 're-sharing' and 'liking' practices motivate the students to be more active in the learning process, which helped the participants form a learning community. Durgungoz and Durgungoz (2021) also underlined that using an instant messaging tool like WhatsApp allowed the teacher to engage more flexibly with students, providing immediate feedback and personal insights. This contrasted with the formal classroom environment, enabling informal and extracurricular discussions on the social media platform (Durgungoz, 2022).

Another study examined interactions between high-school students and teachers on an online social network to uncover the impact on classroom atmosphere and learning processes. The study indicated that social media interactions strengthened relationships, enhanced classroom ambience, promoted active learning participation, and facilitated collaboration and peer support. Additionally, the study shed light on reasons behind teachers' cautious approach to online communication, emphasising the importance of a

balanced online presence to prevent negative behaviours like online “flaming” (Kasperski and Blau, 2019). The authors further stated that students showed keen interest in getting to know their teachers more personally and building closer relationships. This connection was often facilitated through class groups managed by teachers or direct connections as Facebook “friends.” Social media offered a platform for revealing personal aspects beyond the classroom, which deepened trust and rapport (Kasperski and Blau, 2019)

The change of medium seemed to shape the teacher’s interactions with the students. Although it cannot be claimed that social media had such a significant influence on the teacher’s changing behaviour, it can nevertheless be said that social media helped the teacher to reveal his ‘social presence’, which was able to change the teacher-as-authority image. Thus, when the environment changed (from class to social media), the medium to interact with the students shifted from face-to-face to digitalised communication. For the teacher, interacting in an online environment seemed to create more informal language opportunities, which encouraged students to have a highly favourable opinion of collaborative learning sessions that take place online, especially regarding their enjoyment and usefulness (Anitha and Kavitha, 2022).

#### **4.2 Teacher’s presence as an insider rather than an instructor positively affects student engagement**

Bora’s participation in the activities significantly affected the students’ perception of him. It can be claimed that the teacher’s interactions became more efficient when he participated in the activity as an ‘insider’. Thus, rather than giving specific guidelines, instructions, warnings, and support using a ‘teacher voice’, acting as a learner encouraged the students to be more relaxed and active, creating a symmetric relationship between them. Symmetry in teacher/student interaction is defined as completing work by enabling them to feel that they accomplished it together with the teacher (Tabak & Baumgartner, 2004). Tabak & Baumgartner (2004) called this situation “revoicing”, where the teacher uses the students’ statements to teach them an important concept. In this way, the language that the teacher uses changes so that the teacher presents his/her sentences like a student. Although the authors investigated a classroom environment and aimed for a different goal, the method they explored shows similarities with this study. This study also showed that the teacher’s participation as a learner required him to change the form of language he used. By adopting a ‘learner voice’, Bora created an informal environment where the students felt more relaxed and increased participation. Similar to the findings of this study, Mbada et al. (2023) also posited that social media platforms facilitate group communication and social interaction. In particular, members of these groups tend to engage in lively, emotionally charged, and close-knit exchanges. This dynamic online environment promotes collaboration and fosters a strong sense of community among participants.

Although informality was an important factor in creating a sense of community, there is a need to define the nature of informality. The findings presented in this study

have shown that the students found the teacher's communicative acts informal on the social media platform compared to the teacher's personality in the classroom. Bora is perceived as a serious teacher at the school, so the students called him 'my friend' and chatting with him as if they were his colleague was perceived as a sincere form of interaction that the students had not had before. Hence, the understanding of informality depends on the culture, context, personality and existing relationship that the participants have with one another, as Bakhtin (2010) commented:

*"The word does not exist in a neutral and impersonal language (it is not, after all, out of a dictionary that the speaker gets his words!), but rather it exists in other people's mouths, in other people's contexts, serving other people's intentions: it is from there that one must take the word, and make it one's own."* (p.293)

Bora's informal participation on the social media platform influenced the students' engagement level. This is an important element that should be seen in an online learning community because one of the previous studies showed that although the learners participated actively in an online learning activity, a close examination of their posts showed that there was no referring to one another in the absence of any teacher support; hence, there was no discussion (Dennen & Wieland, 2007). A teacher's participation as a learner is, therefore found to be an important factor that leads learners to try to engage with one another.

It has been stated in the literature that students in this age group need more teacher support; otherwise, they become disengaged (Klem & Connell, 2004). As illustrated in this study, the students needed the teacher's help to understand the learning activity's nature. In particular, the informal language which the teacher used stimulated the students' activeness. The more the teacher acted as a learner, the more relaxed his students seemed to interact with him, increasing their level of enjoyment and engagement.

As stated in the data presentation, the participants used the social media platform longer, even though the project was agreed to last for five months. The participants were also not expected to use the platform daily, but they actively used it throughout this time. Sustainability is an essential element that a thriving learning community should have (Gulbahar & Kalelioglu, 2015). It can be claimed that the primary motivation for having a sustainable social media experience mainly arose from the teacher's participative and informal practices, which were perceived as enjoyable and engaging by the students. To maintain such sustainability, it should also be noted that teachers should provide clear instructions and guidance to foster students' understanding and progress to enable collaborative learning, engagement, and flexible teaching approaches (Afzal and Abdullah, 2022).

Although no misuse of social media groups has been observed or reported, Ghandour et al. (2022) suggest stronger monitoring of student groups to uphold ethical standards, as a few cases of misuse and code of conduct violations were observed in their

study. They advise participants to maintain respectful and supportive communication, preserve confidentiality, and use moderate and appropriate language, even when expressing criticism or emotions. Overall, the authors stated that the benefits of employing social media groups outweigh these challenges.

### **Conflict of Interest Statement**

The author declares no conflicts of interest.

### **About the Author(s)**

Ahmet Durgungoz is a Lecturer in the Department of Computer Education and Instructional Technology at Mersin University, Turkiye.

### **References**

- Afzal, I., & Abdullah, N. A. (2022). Role of WhatsApp in Teaching and Learning Process in Schools in Pakistan. *Journal of Educators Online*, 19(3), n3.
- Anitha, D., & Kavitha, D. (2022). Improving problem-solving skills through technology assisted collaborative learning in a first-year engineering mathematics course. *Interactive Technology and Smart Education*, (ahead-of-print).
- Asterhan, C. S., & Rosenberg, H. (2015). The promise, reality and dilemmas of secondary school teacher–student interactions in Facebook: The teacher perspective. *Computers & Education*, 85, 134-148.
- Bakhtin, M. M. (2010). *The dialogic imagination: Four essays* (Vol. 1). University of Texas Press.
- Baran, B. (2010). Facebook as a formal instructional environment. *British Journal of Educational Technology*, 41(6), 146-149. <https://doi.org/10.1111/j.1467-8535.2010.01115.x>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, 3(2), 77-101.
- Cho, H., Gay, G., Davidson, B., & Ingraffea, A. (2007). Social networks, communication styles, and learning performance in a CSCL community. *Computers & Education*, 49(2), 309-329.
- Cho, M.-H., & Kim, B. J. (2013). Students' self-regulation for interaction with others in online learning environments. *The Internet and higher education*, 17, 69-75.
- Comas-Quinn, A., de los Arcos, B., & Mardomingo, R. (2012). Virtual learning environments (VLEs) for distance language learning: Shifting tutor roles in a contested space for interaction. *Computer Assisted Language Learning*, 25(2), 129-143.
- Crook, C., & Cluley, R. (2009). The teaching voice on the learning platform: seeking classroom climates within a virtual learning environment. *Learning, Media and Technology*, 34(3), 199-213.

- Cui, G., Lockee, B., & Meng, C. (2013). Building modern online social presence: A review of social presence theory and its instructional design implications for future trends. *Education and information technologies*, 18, 661-685.
- Dennen, V. P., & Wieland, K. (2007). From interaction to intersubjectivity: Facilitating online group discourse processes. *Distance Education*, 28(3), 281-297.
- Durgungoz, A., & Durgungoz, F. C. (2022). "We are much closer here": exploring the use of WhatsApp as a learning environment in a secondary school mathematics class. *Learning Environments Research*, 25(2), 423-444.
- Durgungoz, A. (2022). Teacher as a YouTuber: Investigating Teacher-Generated Asynchronous Videos, Students' Engagement, and the Teacher-Student Relationship. *International Journal of Emerging Technologies in Learning (Online)*, 17(15), 68.
- Ghandour, A., Woodford, B. J., Almutairy, A., & Al-Srehan, H. S. (2022, November). Means to Support the Ends: Forums that Escape the Official Gaze in the Educational Institutions. In *2022 International Arab Conference on Information Technology (ACIT)* (pp. 1-5). IEEE.
- Griggs, T. (2001). Teaching as acting: Considering acting as epistemology and its use in teaching and teacher preparation. *Teacher Education Quarterly*, 23-37.
- Gulbahar, Y., & Kalelioglu, F. (2015). Competencies for e-Instructors: How to Qualify and Guarantee Sustainability. *Contemporary Educational Technology*, 6(2), 140-154. <https://files.eric.ed.gov/fulltext/EJ1105729.pdf>
- Kasperski, R., & Blau, I. (2023). Social capital in high-schools: teacher-student relationships within an online social network and their association with in-class interactions and learning. *Interactive Learning Environments*, 31(2), 955-971.
- Kern, R. (2006). Perspectives on technology in learning and teaching languages. *Tesol Quarterly*, 40(1), 183-210. <https://doi.org/10.2307/40264516>
- Klem, A. M., & Connell, J. P. (2004). Relationships matter: Linking teacher support to student engagement and achievement. *Journal of school health*, 74(7), 262-273.
- Lee, C. E., Chern, H. H., & Azmir, D. A. (2023). WhatsApp Use in a Higher Education Learning Environment: Perspective of Students of a Malaysian Private University on Academic Performance and Team Effectiveness. *Education Sciences*, 13(3), 244.
- Maor, D. (2003). The teacher's role in developing interaction and reflection in an online learning community. *Educational Media International*, 40(1-2), 127-138.
- Mbada, C. E., Jeje, O. O., Akande, M., Mbada, K. A., Fatoye, C., Olakorede, D., ... & Fatoye, F. (2023). Social presence and dynamics of group communication: An analysis of a health professionals WhatsApp group chats. *PLoS One*, 18(7), e0288773.
- McCarthy, J. (2010). Blended learning environments: Using social networking sites to enhance the first year experience. *Australasian Journal of Educational Technology*, 26(6), 729-740. <https://doi.org/https://doi.org/10.14742/ajet.1039>
- Richardson, J. C., & Ice, P. (2010). Investigating students' level of critical thinking across instructional strategies in online discussions. *The Internet and higher education*, 13(1), 52-59.

- Richardson, J. C., & Swan, K. (2003). Examining social presence in online courses in relation to students' perceived learning and satisfaction. *Journal of asynchronous learning networks*, 7(1), 68-88.
- Sarason, S. B. (1999). *Teaching as a performing art*. Teachers College Press.
- Shea, P., Li, C. S., & Pickett, A. (2006). A study of teaching presence and student sense of learning community in fully online and web-enhanced college courses. *The Internet and higher education*, 9(3), 175-190.
- Shi, S. (2010). Teacher moderating and student engagement in synchronous computer conferences. *Journal of Online Learning and Teaching*, 6(2), 431-445. [http://jolt.merlot.org/vol6no2/shi\\_0610.pdf](http://jolt.merlot.org/vol6no2/shi_0610.pdf)
- Stebbins, R. A., & Woods, P. (2012). The role of humour in teaching: strategy and self-expression. In P. Woods (Ed.), *Teaching strategies: Exploration in the sociology of the school* (pp. 84-97). Routledge.
- Strudler, N., & Grove, K. (2013). *I See You: Using the Affordances of Google+ to Increase Social and Teaching Presence in an Online Undergraduate Teacher Education Course*. ISTE 2013, San Antonio. Retrieved from <https://pdfs.semanticscholar.org/3b73/afc02974273adb320eef0416354024f506b9.pdf>
- Tabak, I., & Baumgartner, E. (2004). The teacher as partner: Exploring participant structures, symmetry, and identity work in scaffolding. *Cognition and Instruction*, 22(4), 393-429.
- Teven, J. J. (2007). Teacher caring and classroom behavior: Relationships with student affect and perceptions of teacher competence and trustworthiness. *Communication Quarterly*, 55(4), 433-450.
- Tichavsky, L. P., Hunt, A. N., Driscoll, A., & Jicha, K. (2015). "It's Just Nice Having a Real Teacher": Student Perceptions of Online versus Face-to-Face Instruction. *International Journal for the Scholarship of Teaching and Learning*, 9(2), Article 2. <https://doi.org/https://doi.org/10.20429/ijstl.2015.090202>
- Vygotsky, L. S. (1972). The psychology of art. 30(4), 564-566. <https://doi.org/10.2307/429477>
- Wentzel, K. R. (1997). Student motivation in middle school: The role of perceived pedagogical caring. *Journal of Educational Psychology*, 89(3), 411-419. <https://doi.org/http://dx.doi.org/10.1037/0022-0663.89.3.411>
- Yang, Y., Crook, C., & O'Malley, C. (2014). Can a social networking site support afterschool group learning of Mandarin? *Learning, Media and Technology*, 39(3), 267-282.

## Appendix A. Tables

**Table 1:** Research questions mapped to data sets and the necessity of use

Research Questions	Data Sets			Necessity and Analysis Procedure
	The teacher's posts and comments	Interviews with the teacher	Interviews with the students	
RQ 1: What was the frequency of the teacher's participation on the social-media platform outside school hours?	×	×		To explore the frequency of the teacher's online presence outside school hours.  A descriptive analysis was performed to see the frequency of the teachers' actions on Google+. To do this, a tool called <i>allmyplus</i> was used.
RQ 2: What was the nature of communicative acts that the teacher used when interacting with secondary-school students outside school hours through social media?	×			To understand the purposes for which the teacher used the social media platform.  Thematic content analysis was used to reveal the nature of the teacher's use of Google+.
RQ3: Whether or how the teacher's online interactions influence the students' understanding of their relationship with the teacher?	×	×	×	To reveal the students' perception of the teacher as a result of interacting through Google+.  An inductive thematic analysis was used to analyse the interview results and the teacher's postings and his interactions with the students on Google+.

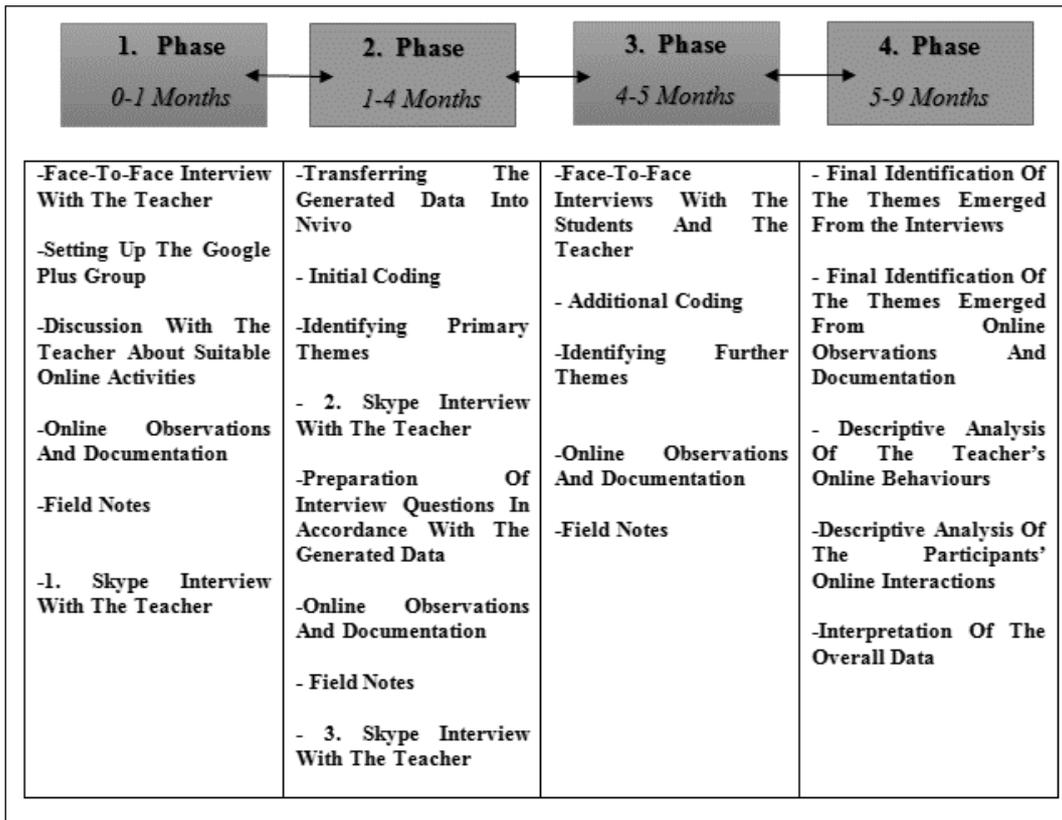
**Table 2:** The percentage of extracted themes from Bora's posts and comments on the Google+ group

(1) <b>Initiative</b> Stimulating Conversation	(a) <i>Posts</i> : Bora shares images or videos along with a text, which have an informal nature ('Guys did you see my photos, I did flying practices today. Do you wonder how it did go?' 'My friends, has anyone seen me as I flined through Istanbul today? I am the best scientist ever ☺')	%38
	(b) <i>Comments</i> : Bora makes comments to students' posts to initiate a conversation ('I see you did great works, could you tell me more about it', 'How interesting it is, you must be a great mathematician', 'Avicenna, you say you are a physician, what does this mean? It seems so interesting')	%48
(2) <b>Reflective</b> Modes of addressing the classroom activities	(a) <i>Posts</i> : Bora shares photographs of classroom, a trip or materials	%36
	(b) <i>Comments</i> : Bora refers the classroom activities ('try to edit it as I showed you in the class', 'remember what I told you in the class')	%9
(3) <b>Supportive</b> Encouraging Interactions	(a) <i>Posts</i> : Appreciating the students by sharing the images of their work along with a text ('you see how it is done, that is great', 'this video is great, well done', 'such great images, how you found these?')	%5
	(b) <i>Comments</i> : Appreciating the students for exchanging comments ('Well done, you seem to help one another a lot', 'Keep discussing, I am following you, it is really exciting', 'you are great my friends may god consolidate your relationship')	%36
(4) <b>Informative</b> Giving Instructions and Information sharing	(a) <i>Posts</i> : Bora shares videos, images, links and texts about a subject-matter	%21
	(b) <i>Comments</i> : Bora warns or gives instructions ('you forgot to put hashtag', 'don't forget to change your profile picture', 'you should first introduce the scientist you chose')	%7

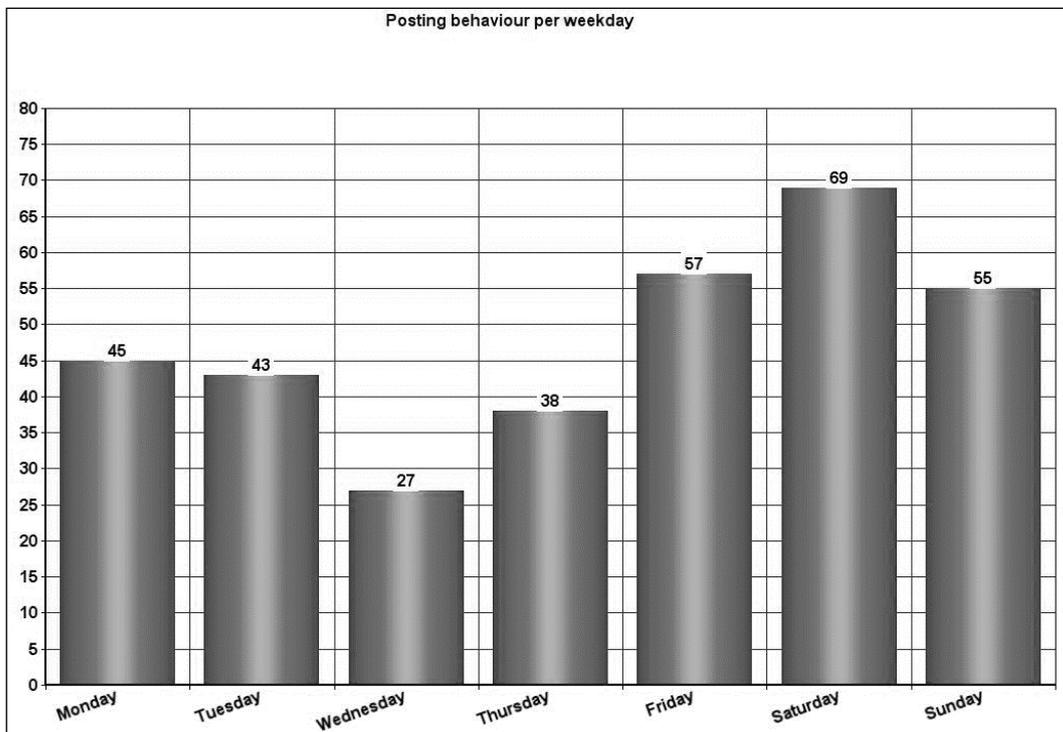
**Table 3:** An illustration of one of the teacher's posts and the exchange of comments under the post

Bora: <b><i>"My first flight was successful. The Sultan watched me from the palace. I didn't let him down. I flew from the Galata Tower to Uskudar. I thank my master Abbas Ibni Firnas. (who is another student's character)"</i></b>
<i>(Bora and fourteen students exchange comments)</i>
S5: Congratulations.
S6: Take it easy, my friend.
S7: I wish you luck with your future flights.
Bora: <b><i>I hope you will be there next time in Galata.</i></b>
S6: I promise, my friend, we will be there.
S8: Take it easy, my friend. Would you take me on your flight next time?
Teacher: <b><i>Let me do the experiment flights first if I don't face any problem, I will arrange a tour.</i></b>
S8: That is great. We would take an Istanbul tour for free instead of walking around.
S9: Take it easy Hazerfan. Never let the Sultan down OK. I am proud of you as my student.
Bora: <b><i>Hopefully, with your prayers.</i></b>
S10: Next time, you will make a pair of wings for us, and we would fly together and become famous.
S6: Hopefully.
S12: Congratulations, I will add this flight to my encyclopaedia. Sayings fly, but writings last.
Bora: <b><i>Thanks, my friends. By the way, the Sultan rewarded me.</i></b>
S14: Congratulations. I could make new maps with your help. Please let me know the places you flew over.
S15: Congratulations, if you had any breaks, I could help, as you know, I am a doctor.
S16: Congratulations.
Bora: <b><i>Thanks, my friends, I had just a couple of scratches. I will improve myself and arrange a tour for you.</i></b>
S17: Congratulations,... I also watched you, but you didn't see me.
S18: How far you flew!
Bora: <b><i>As far as Uskudar!</i></b>
S19: Hmmm, that is very good. I wish you luck in the next ones. I hope I finish my robotic works so it might help you.
S20: Congratulations, that is a great success.

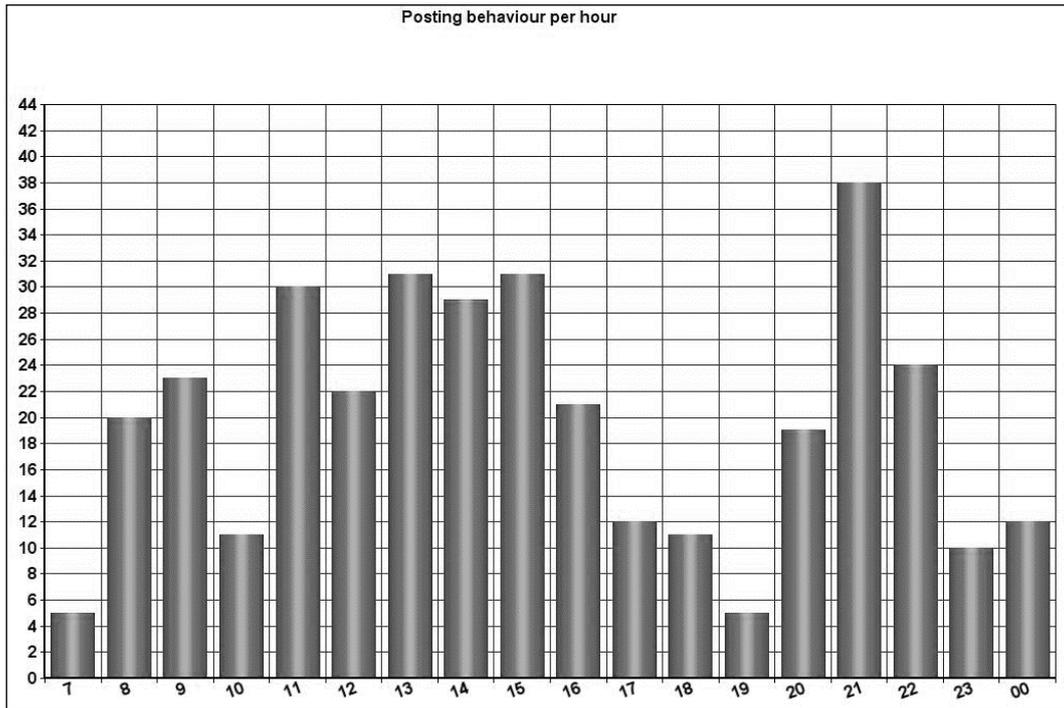
**B. Figures**



**Figure 2:** An overview of the combined data generation and analysis process



**Figure 3:** Bora's daily posting behaviour on the Google+ group



**Figure 4:** Bora's hourly posting behaviour on the Google+ group

Creative Commons licensing terms

Authors will retain the copyright of their published articles agreeing that a Creative Commons Attribution 4.0 International License (CC BY 4.0) terms will be applied to their work. Under the terms of this license, no permission is required from the author(s) or publisher for members of the community to copy, distribute, transmit or adapt the article content, providing a proper, prominent and unambiguous attribution to the authors in a manner that makes clear that the materials are being reused under permission of a Creative Commons License. Views, opinions and conclusions expressed in this research article are views, opinions and conclusions of the author(s). Open Access Publishing Group and European Journal of Open Education and E-learning Studies shall not be responsible or answerable for any loss, damage or liability caused in relation to/arising out of conflict of interests, copyright violations and inappropriate or inaccurate use of any kind content related or integrated on the research work. All the published works are meeting the Open Access Publishing requirements and can be freely accessed, shared, modified, distributed and used in educational, commercial and non-commercial purposes under a [Creative Commons Attribution 4.0 International License \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/).