Use of Team Management software to optimize communication and organization of a psychiatry clinical placement.

Uso de Software de Gestión de Equipos para optimizar la comunicación y organización de las Prácticas Tuteladas de Psiquiatría.

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Abstract: Effective communication and organization are essential for ensuring quality clinical education in undergraduate medical training, including clinical placements. This study analyzes the use of Microsoft Teams (MT) as a tool to enhance communication and organization during a clinical placement. MT was used for organizational and communicational purposes as well as to facilitate the implementation of complementary teaching activities of psychiatry placements for final-year medical students at the University of Valencia. Students were included in a *Team* for their clerkship period and university hospital. Communication was possible through the *General Channel* of the *Team* and a *Chat*. Important files for the organization of the clerkship were shared using the platform and activities were integrated using the *Tasks* function. The number of days on which students connected with their *Team* were registered. Global and weekly percentage days of connection were calculated. Interactions within the *General Channel* of the *Team* were also registered. 118 students completed a four-week rotation in two university hospitals. 100% connected with MT during the clerkship. 93.2% connected, at least, 15% of the days. The median of percentages of access to the *Team* was 39.1% (IQR = 33.7). Engagement levels varied across weeks (p < .001, what was coherent with the clerkship's structure). 76% of students interacted at least once within the *General Channel*. Most interactions (63%) were responses to previous commentaries and 100% of them had an organizational purpose. The use of MT was moderate and adjusted to the structure of the placement. Results suggest that Team Management software is a useful tool that can be adapted to fulfill the complex organizational and communication needs of clinical placements.

Keywords: Medical education, Team Management software, clerkship, Microsoft Teams, innovative education.

Resumen: Una comunicación y organización efectivas son esenciales para garantizar una educación clínica de calidad en la formación médica de pregrado, incluyendo las prácticas clínicas. Este estudio analiza el uso de Microsoft Teams (MT) como herramienta para mejorar la

comunicación y organización durante un rotatorio clínico. MT se utilizó con fines organizativos y comunicativos, así como para facilitar la implementación de actividades docentes complementarias en las prácticas de psiquiatría para estudiantes de último año de Medicina en la Universidad de Valencia. Los estudiantes fueron incluidos en un *Equipo* específico para su período de rotación y hospital universitario. La comunicación se realizó a través del *Canal General* de este *Equipo* y un *Chat* de MT. Los archivos importantes para la organización de la rotación se compartieron mediante la plataforma, y las actividades fueron integradas usando la función *Tareas*. Se registró el número de días en los que los estudiantes se conectaron a su *Equipo*. Se calcularon los porcentajes globales y semanales de días de conexión. También se registraron las interacciones dentro del *Canal General*. Un total de 118 estudiantes completaron una rotación de cuatro semanas en dos hospitales universitarios. El 100% de los estudiantes se conectó a MT durante la rotación y el 93.2% lo hizo al menos el 15% de los días. La mediana de acceso al *Equipo* fue del 39.1% (IQR = 33.7). Los niveles de participación variaron entre semanas (p < .001), en concordancia con la estructura de la rotación. El 76% de los estudiantes interactuó al menos una vez dentro del *Canal General*. La mayoría de las interacciones (63%) fueron respuestas a comentarios previos y el 100% de ellas tuvieron un propósito organizativo. El uso de MT fue moderado y se ajustó a la estructura de la rotación clínica. Los resultados sugieren que el software de gestión de equipos es una herramienta útil que puede adaptarse para satisfacer las complejas necesidades organizativas y de comunicación en las prácticas clínicas.

Palabras clave: Educación médica, software de gestión de equipos, rotación clínica, Microsoft Teams, innovación educativa.

1. Introduction

Effective and fluid communication in education is essential for enhancing learning and ensuring optimal teaching outcomes. This interaction not only supports the transfer of knowledge but also contributes to the development of competencies and a more comprehensive and satisfying educational experience (1). Effective communication enables educators to individualize their teaching according to the needs of students, fostering a deeper understanding of complex concepts. In the case of undergraduate medical education, this is not only important when theoretical content is taught, but also becomes relevant in clinical practical teaching, where students apply their knowledge in real-world contexts (2).

Clinical training is a crucial part of undergraduate medical teaching. This training is generally implemented in placements or clerkships, which take place in different settings and across a wide range of medical specialties. This training provides students with invaluable experiences that further enhance their learning. These experiences reinforce theoretical learning and contribute to the development of humanistic and practical competencies, essential for healthcare practice (2-3). Students develop critical thinking, decision-making, and interpersonal communication skills by interacting with patients and observing medical professionals. Furthermore, to guarantee an adequate learning experience, these clerkships typically involve small groups of students distributed across university hospitals and medical departments. This small-group setting ensures a more personalized learning experience in which students receive direct feedback and guidance from experienced mentors (4).

Despite its importance, clinical practical teaching often faces significant obstacles that hinder proper organization and fluid communication between faculty and students, particularly when students are dispersed across multiple clinical sites, or visit multiple clinical settings, including diverse learning content and faculty (5). In these situations, if easy and direct channels to communicate with the representatives of the faculty are not quick and easily accessible, and instructions regarding the clerkship and its assessment tasks are not clear, students might find it

difficult to fully benefit from the clinical learning experience. Among various potential solutions, the integration of digital tools has emerged as an innovative option (6).

In an increasingly globalized and digital educational landscape, in which hybrid education is progressively becoming more feasible and advantageous, the inclusion of technology in the structure of clinical teaching can help enhance the learning experience. For instance, while direct contact with the patient exposes students to diverse realities in healthcare systems, digital tools facilitate collaboration and access to resources, ultimately enriching their learning (7). Furthermore, these tools help bridge the gap in communication by providing platforms that facilitate interaction between faculty, students, and clinical supervisors, no matter their location, enabling students to develop important digital competencies that will be useful in the future (8). In that sense, therefore, digital methodologies in medical education should also focus on training medical students to use technologies while overcoming possible disadvantages that these methods might entail. For example, an excessive dependence on technology in medical care might cause a loss of the necessary humanism and communication skills needed for a doctor-patient relationship (7). In turn, technology could be integrated to enhance communication and organizational skills while strengthening the direct doctor-patient relationship. Clinical teaching in practice could be an ideal setting for implementing such methodologies.

In that sense, research demonstrates that factors such as the structure and organization of clerkships, together with the alignment between theoretical and practical components, and the quality of feedback is a strong predictor of students' overall satisfaction (9). Well-organized clerkships where students can make the connection between theory and practice, combined with clear assessment objectives, are particularly beneficial. Specifically, a well-structured clerkship that aligns learning activities with assessment objectives and provides ample opportunities for student-teacher interaction significantly enhances the educational experience (9). The integration of Team Management software directly addresses these organizational challenges by improving scheduling consistency, facilitating real-time feedback, and streamlining resource coordination. More concretely, they allows for the coordination of resources, scheduling, and real-time feedback, helping to ensure that students feel supported and engaged throughout their placements (10). Furthermore, it enables the integration of other educational tools within the platform, permitting the addition of other teaching methods to the clerkship (11). The use of unique and integrative software helps create a combination of digital organizational and educational methods, which is essential for developing a coherent innovative teaching environment (6).

In conclusion, integrating digital communication tools and innovative teaching methods into clinical training can address logistical challenges, enhancing communication and organization during clerkships. Furthermore, the integration of these tools allows for the incorporation of complementary teaching methods that can significantly improve learning experiences. This study aims to describe the implementation of Team Management software in clinical placements and to analyze how it was used by medical students during a one-month clerkship. More concretely, we hypothesized that 1) this software can be used effectively for organization and communication purposes and 2) the use of the platform during the clerkship adapts to the clerkship's phases and the teaching methodologies employed (6).

2. Methods

This study analyzes the use of Team Management software for organization, communication, and the implementation of complementary teaching activities during the psychiatry clinical placements for final-year medical students.

Participants

The study included medical students from the University of Valencia, Spain, who carried out their psychiatry clinical placements during the 2023-2024 academic year. Specifically, it focused on students who carried out their placements at two university hospitals: the Hospital Universitario y Politécnico La Fe and the Hospital Clínico Universitario, both located in Valencia. Only students who completed these placements between September and March were included. Those completing placements in April and May were excluded due to significant calendar variations during these months, related to end-of-degree activities, which could introduce confounding factors in the interpretation of results due to end-of-degree activities.

Implementation of the Placements

The psychiatry clinical placements at the University of Valencia are conducted in the final (sixth) year of medical studies. This mandatory four-week rotation is organized in groups of eight to ten students. The organization and evaluation of the placement are the responsibility of university faculty members (clinical associate professors), although clinical teaching also involves other professionals, such as additional university professors and clinical collaborators, whom students accompany during daily clinical activities.

Traditionally, these placements include an initial meeting between students and a supervising faculty member at the beginning of the clerkship, and clinical skills are evaluated at the end of the rotation through the presentation of a clinical case. Communication between faculty and students has primarily been face-to-face or via email. In the participating hospitals, however, the organization and teaching of these placements were organized in line with an Educational Innovation Project, which included the use of Microsoft Teams (MT) to facilitate communication, organization within the clinical placement, as well as the incorporation of complementary teaching activities into the Psychiatry Clinical Placement. More concretely, it included: 1) Evaluation through a video simulation of a psychiatric interview, where students, working in pairs or groups of three, recorded a video simulated a psychiatric interview. These videos were assessed by two faculty members using a standardized rubric and had to be submitted by the end of the third week. Additionally, students had the opportunity to watch and evaluate the videos of the previous group during the first week, as well as to review their own group's video in the final week of the rotation. 2) Discussion of a Clinical Case: Half of the groups conducted a group session during the final week of the rotation. The other half participated in an asynchronous discussion using a virtual whiteboard over two weeks, concluding midway through the final week.

Participation in these innovative methods was voluntary, and students could opt to use traditional methodologies instead. Importantly, the extent to which MT had been used was not a criterion for the evaluation of the clerkship.

Use of Microsoft Teams

MT is software platform designed to facilitate organization and communication within a group of people (Microsoft Corporation, 2023). The platform allows the creation of so-called *Teams* that include professors and students, with differentiated access for the first (e.g., designing assessments, managing evaluations) and latter (e.g., accessing materials). Interactions occur through a *General Channel*, which acts as a forum for messaging and file-sharing. Additionally, MT allows for the creation of *Tasks* (e.g., questionnaires) and the integration of tools like virtual whiteboards. Furthermore, the *Insights* functionality in MT enables faculty to monitor individual activity within the *Team*, including login frequency and types of communication. Direct communication between members is also possible via a *Chat* function, which is used independently of the *Team*.

In this study, a dedicated *Team* was created for each group of students carrying out their placement in a specific period and hospital. The *General Channel* contained instructions for the

rotation, relevant documents for organization, evaluation, and teaching, stored in its *Files* section, and weekly messages in the *General Channel* forum, summarizing key aspects of the rotation. MT was presented as the preferred tool for communication within the project, although other communication channels were accepted. Furthermore, links to the simulation videos were included within *Tasks*, allowing students to view and critically analyze them without downloading or storing them. Finally, the *General Channel* included the access to a *Whiteboard* access to a Whiteboard that facilitated collaborative case discussions.

Of note, although not normally used in these placements, MT is accepted by the University to facilitate communication and organization and, both students and professors, had a University Microsoft License that enabled them to use it.

Variables and Data Analysis

To evaluate student engagement with MT, the number of days in which students had used their specific *Team* were extracted from the *Insights* function. The percentage of active days relative to the total rotation duration (excluding the last weekend and extended holidays) was calculated. The percentage of students who had not used MT during their clerkship and those who had used it less than 15% of the days (this is, less than one day out of seven) were also calculated. Weekly connection rates were calculated and the percentage of days students connected with MT across weeks were analyzed. Furthermore, the number and types of interactions within the *General Channel* were also recorded through the *Insights* function. This included commentaries, replays to other's commentaries and reactions to other's commentaries.

Commentaries and replies were classified based on the theme of their content. More specifically, two different categories were included to determine how prone students were to use this communicative channel for logistical or direct learning inquiries. For that, one member of the faculty analyzed the content of every commentary or reply to determine whether they referred to: 1) Organization and Communication: Questions regarding student distribution, interaction with faculty members, schedules, deadlines, or assessment tasks; 2) Clinical Doubts: Questions related to theoretical content, whether or not connected to clinical situations experienced during the clerkship.

Data were analyzed using IBM SPSS Statistics 28.0 for Windows (IBM Corp., Armonk, NY, 2021). As detailed later, parametric and non-parametric tests were performed depending on whether a normal distribution of the variables existed, as determined by a Saphiro-Wilk test. All data were treated anonymously during their analysis.

Ethical Considerations

This study was conducted during the 2023/24 academic year as part of a broader Consolidated Educational Innovation Project titled *"Online Didactic Methods for the Optimization of the Organization, Teaching, and Evaluation of Supervised Psychiatry Rotations for Medical Students"*. The project was approved by the Vice-Rectorate for Lifelong Learning, Educational Transformation, and Employability of the University of Valencia under the 2023 call for proposals.

3. Results

Days of use of Microsoft Teams

118 students engaged with the use of MT during their clerkship. This represents 100% of the eligible sample. Of them, 8 (6,8%), connected to the platform less than 15% of the days. The percentage of days in which students used MT during the clerkship and for each week of the clerkship is described in Table 1. A Saphiro-Wilk test revealed that these variables had a non-

normal distribution (all ps ≤ .05). A Friedman test, comparing the four Periods revealed significant differences between Periods ($\chi^2(3)$ = 37.0, p < .001). More concretely, the percentage of MT use during Week 2 differed from that of all other weeks (all adjusted ps ≤ .005) while the others did not differ from one another (all adjusted ps ≥ .262).

Table 1. Percentage of days of use of Microsoft Teams

Period	Me (IQR)
Global	39.1 (33.7)
Week 1	42.9 (28.6)
Week 2	28.6 (42.9)
Week 3	42.9 (42.9)
Week 4	42.9 (22.9)

Me: Median; IQR: Interquartile Rank

Interactions within the General Channel

82 (76%) students interacted at least once within the *General Channel*. Of them, 23 (21.3%) posted comments, 68 (63%) replied to previous posts and 25 (23.1%) reacted to others' posts or replies. The Median (and Interquartile Rank) of total interactions per person was 2 (2), 0 (0) for posts and reactions and 1 (2) for replies to previous posts. 100% of the commentaries referred had an organizational purpose.

4. Discussion

This study explores the use of MT as a tool to organize, communicate, and implement complementary activities during a final-year psychiatry clinical placement. The results show that most students used the platform consistently throughout the rotation. MT was mainly used for organizational tasks, such as managing schedules and accessing important documents, rather than for direct teaching of psychiatry-related content. Furthermore, engagement levels varied across weeks, which adapted to the teaching methodology of the clerkship.

Regarding the use of Team Management software, all students used the platform, and it was generally used at a moderate frequency. Of note, the most important source of learning during the clerkship was clinical contact with patients (3). Thus, more frequent usage was not expected. The interactions within the platform's *General Channel* were limited. Most students responded to posts rather than initiating discussions, and all communications were related to organizational rather than academic topics. This suggests that students may have preferred direct personal interaction with faculty for clinical inquiries, potentially due to perceived limitations of the platform for that purpose. This may be because comments in the *General Channel* were public, potentially making students feel judged by their colleagues when asking such questions (12). Unlike MT's use for enhancing medical theoretical knowledge (13), our study focused on its application in clinical placements, in which competencies should be mainly acquired through direct contact with the patient. However, if educators aimed to increase the use of the platform to offer complementary learning, active teaching strategies, such as sharing clinical case discussions or remote virtual tutorials, could be integrated into the platform (14).

Conversely, the value of Team Management software in addressing logistical challenges in clinical placements was evident. As emphasized in the introduction, effective communication and organization are essential for clinical education. By providing a centralized hub for coordination, MT supported students in navigating their placements. This reflects its role in improving coordination during clinical placements, aligning with the challenges of managing dispersed

student groups (4). Furthermore, as Eley et al. (15) highlight, as a tool enhancing communication between students and professors, this software can help to better accommodate the diverse and evolving needs of medical students in today's globalized educational landscape.

One key observation was the variation in MT usage between weeks, with the lowest engagement occurring in the second week. This is, as students accessed the platform primarily for organizational and task-related purposes (such as reviewing documents or submitting assignments), rather than for continuous interaction or learning, their MT connection differed depending on the programmed on-line activities and deadlines. This indicates that improving organizational aspects may have a positive impact on student engagement and satisfaction, as suggested by the literature. Furthermore, this coherence between platform usage and the clinical placement design indicates that the tool was consistently integrated with other teaching methodologies (6).

All in all, MT provided students with the opportunity to easily communicate with faculty, which was especially used to clarify organizational aspects of the placement. Furthermore, this software enabled faculty to provide easy access within the platform to important documents and organizational instructions, as well as integrate digital tools to enhance learning and assessment during the placement. When comparing MT's use for improving clinical placements to traditional methods—such as email communication with faculty representatives and offline clinical case presentations at the end of the clerkship—several advantages emerge. First, using a digital tool for communication may facilitate interactions with faculty, making them easier, more frequent, and more fluid (16). Furthermore, MT enabled the addition of more complex assessment tasks, such as simulation videos that could be shared with the rest of the group, and collaborative online case discussions, which may better assess clinical competencies (17).

This study counts with some limitations that should be considered. First, our results are limited to a psychiatry placement in two university hospitals and a specific structure tailored to the Project in which MT was used. However, we do provide a thorough description and analysis of an innovative use of a versatile tool that might allow other clinical professors to adapt it to their needs. Similarly, this study does not enable a comparison with the traditional or alternative methods. Nevertheless, the effective implementation of a previously known software within a multifaceted educational project positions it as a viable option for enhancing communication within the complex organization of clinical placements. Furthermore, the article does not directly assess student satisfaction or learning outcomes. Instead, it draws indirect inferences based on interaction frequency and type, supported by previous literature. Finally, our results were influenced by the use of MT to complete the assessment tasks (overvaluation of the communicative use of MT) or the MT *Chat* to communicate with professors (undervaluation of its use). However, the use of the *General Channel*, along with the number and types of interactions within it, provides a useful description of how MT facilitated the integration of modules in this complex teaching methodology during clinical practice.

To summarize, this study shows that MT was a helpful tool for improving the organization and communication of clinical placements and was effectively integrated into the design of the placement. Future efforts should focus on combining its organizational strengths with strategies to enhance active and spontaneous students' communication (rather than passive and response-based) and facilitating discussion regarding theoretical or clinical doubts, without replacing the essential practical learning source of clerkships. This dual approach could optimize both the logistical and pedagogical aspects of such clinical education, ultimately providing a more comprehensive learning experience for students.

5. Conclusions

- The use of MT enhanced the communication, organization and structure of the final-year clinical placement.
- The use of the tool was moderate and adjusted to the structure of the placement.
- MT was especially used to ask organizational questions and interactions consisted mainly of responses to previous commentaries.
- Team Management software is a useful tool that can be adapted to fulfill the complex organizational and communication needs of clinical placements.
- The literature suggests that improving organization and communication with such software might indirectly improve student learning experiences and satisfaction.

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