



How Can Education Systems Structure Virtual Communities of Practice for Teachers Most Effectively?

A Rapid Review

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Key takeaways

Virtual communities of practice (VCoPs) can be a low-cost mode of delivering teacher continuous professional development, although there are currently no studies measuring their effectiveness in boosting student learning. VCoPs typically serve as platforms for knowledge exchange. Observational cases studies suggest that teachers report that VCoPs can be a useful tool for collaborating on solving difficult problems and fostering a sense of community among teachers. The main challenges faced by VCoPs include lack of digital literacy and internet connectivity, poor quality content, low participation, lack of continuity over time, lack of trust and open sharing of teachers' concerns, and the time involved in administering VCoPs. Several observational case studies offer potential solutions for the challenges, but there are often trade-offs between different approaches (e.g., more top-down vs. bottom-up). These trade-offs underscore the value from piloting and rigorously testing the impact of these solutions on VCoP functioning, sustainability, and, ultimately, student learning.

Introduction

Many education systems use virtual communities of practice (VCoPs)—including WhatsApp groups for teachers—to provide a forum for teachers to ask and answer each other’s questions. The motivation is that teachers can learn from, and support, each other in improving their teaching practices and ultimately boost student learning. These are especially appealing interventions in resource-constrained settings, given the low cost, but it is unclear whether such a light-touch approach by itself can induce behavioral change.

In this rapid review, we synthesize the lessons learned from 23 studies from around the world (including countries in the Americas, Africa, Europe, and Asia). Appendix A lists the studies, and more details on them are available in [an online database](#). Our search centered on WhatsApp groups—likely the most common form of virtual teacher communities—but we included lessons from other VCoPs that we found, as well as reviews and an occasional study of communities of practice more generally. We identified the studies by using relevant search terms (such as “communities of learning,” “communities of practice,” “teachers,” and “education”) in Google Scholar, and by reviewing bibliographies of relevant studies we identified. We complemented the search with the inclusion of a handful of studies we were already familiar with. Beyond lessons learned across many countries, we provide a more detailed characterization of the experience with VCoPs (using WhatsApp) in Tanzania.

Most documentation of these VCoPs is in the form of descriptive studies, often using qualitative methods. While these studies alone do not provide rigorous evidence of the impact of these groups on student learning in the absence of a counterfactual (i.e., a credible comparison group to infer what would have happened in the absence of the VCoPs), they yield valuable lessons on what has worked, what has not, and what could work better in encouraging an active functioning of VCoPs. We did not identify a single study identifying the impact of teacher VCoPs on student learning with either an experimental or quasi-experimental study design; thus, further research identifying the impact on student learning is urgently needed.

We highlight an important caution: While the challenges are largely those that were experienced, the proposed solutions—while they stem from those who have implemented these programs—are proposed solutions rather than tested solutions. Again, this provides an opportunity to test how to improve these groups empirically.

Results

What do studies suggest that virtual communities of practice were useful for?

The studies we identify highlight three objectives that WhatsApp groups are useful in achieving.

Teachers help each other solve difficult problems. In Tanzania, math teachers have used WhatsApp groups for this. ¹	Teachers share materials and knowledge on both subject matter and pedagogical content. Economics teachers in South Africa used WhatsApp groups to share teaching aids and documents from the Department of Education. ²	Foster a sense of community among teachers, playing a supportive role in some settings and fostering healthy competition in others. Teachers in South Africa used WhatsApp groups to celebrate each other's accomplishments. ³
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What are common challenges and potential solutions to effectively implementing VCoPs?

COMMON CHALLENGES	POTENTIAL SOLUTIONS
Teachers often have problems with connectivity or a lack of computer skills. Multiple math teachers in Tanzania reported that they "faced challenges like network limitations and costs of buying bundles." ⁴	Many studies recommend additional training in how to use the technology, along with money for internet bundles. Of course, this must be balanced with one purpose of the WhatsApp groups, which is to provide a more economical form of teacher professional development.
In the absence of moderation, groups can grow subject to spam or to incorrect information. In India, teachers reported that WhatsApp groups were used to share "misinformation, malicious spam, and religiously and politically polarizing information." ⁵ In another study the authors noted that WhatsApp groups tend to "become social groups rather than teacher development and support groups." ⁶	To avoid incorrect information, include subject advisors/specialists to support accurate content delivery. Advisors and experts need to be perceived as supporters enabling the VCoP's activity, in contrast to controllers. A group moderator can also set ground rules for the appropriate content to be shared, and respectful style of communication. (At least one app is experimenting with using artificial intelligence—a WhatsApp chatbot—to provide teachers with information that other teachers in the group may not have. ⁷)

- 1 Kihwele, J.E. & Mgata, F. (2022). Mathematics Teachers' Use of WhatsApp Groups as a Platform for Continuous Professional Development in Tanzania. *African Journal of Teacher Education*, 11(1), 121–142.
- 2 Ajani, O. A. (2021). Teachers' use of Whatsapp Platforms as Online Communities of Practice for Professional Development. *Journal of African Films and Diaspora Studies*, 4(1), 103–129.
- 3 Ajani (2021).
- 4 Kihwele & Mgata (2022).
- 5 Varanasi, R.A., Vashistha, A., & Dell, N. (2021). "Tag a teacher: A qualitative analysis of WhatsApp-based teacher networks in low-income Indian schools." In Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems, 1–16.
- 6 Motteram, G., & Dawson, S. (2019). *Resilience and language teacher development in challenging contexts: Supporting teachers through social media*. (ELT Research Papers 19.09). British Council.
- 7 "TheTeacher.ai: A WhatsApp trainer for teachers in the poorest schools," accessed March 17, 2023, <http://theteacher.ai/>.

<p>Most participants are inactive, while group discussions are often dominated by a handful of super-users. In South Africa, teachers reported that the same set of participants actively dominate the platform, “It is true that some people are very active on the platform than others, while some are simply passive. They read messages but do not participate in discussions.”</p>	<p>Identify a moderator to monitor group activity in a non-authoritarian way. A good moderator can ask thought-provoking questions, help to avoid misunderstandings that can arise in virtual interactions, and encourage participation of quieter members. The moderator role need not be fixed but could rotate across different group members to encourage ownership and more active participation.</p>
<p>Even when they initially use the WhatsApp groups, teachers often stop participating after a few months. In South Africa, teachers’ use of tablets to access virtual coaching materials (even with a virtual coach sending messages to follow up) dropped steadily from week to week. After a couple of months, few teachers were using the groups.⁸</p>	<p>There is no easy answer for how to sustain engagement. One study proposed a bottom-up approach where groups self-organize and leaders organically merge.⁹ This might create a sense of ownership that sustains engagement, but there is a risk that no-one takes on this role and that participation is one-sided. Another study highlighted the active role that moderators can play in encouraging sustained participation, through quizzes and puzzles, and recognizing and celebrating teachers’ work.¹⁰ Understanding better what keeps teachers engaged overtime - including why some teachers stop participating over time-should be one of the priority areas for the research.</p>
<p>When supervisors (either principals or school inspectors) were in the VCoP group and launching discussions, teachers felt pressured and observed, potentially limiting their openness to asking for the help they need (e.g., an English teacher asking a basic English grammar question).</p>	<p>Although it is important to include a moderator and pedagogical expert, this person should not be seen as an authoritative figure who reviews teacher performance. This will undermine teachers’ willingness to openly share areas where they need improvement.</p>
<p>Even in the absence of supervisors, it is difficult to foster a culture of trust and honest sharing in a virtual community since the teachers may not know each other in real life. Admission of weaknesses (“I do not know how to do this”) is essential for pedagogical improvement, but this can only be done when the teachers trust the other members of the group.</p>	<p>An in-person workshop to initiate a VCoP can help build the foundations of trust and the basic interaction style of the group. Smaller groups—e.g., not more than 10–15 teachers—and closed membership (i.e., not allowing teachers to invite new people) may work best in fostering trust. Additionally, more homogenous COPs where teachers have similar profiles (including subject matter expertise, years of experience, education, beliefs about teaching) tend to work best for quality interactions within the group. A good moderator can also set the tone and establish ground rules that enable open communication. For example, encourage each group member to share a question or teaching challenge that they are facing.</p>
<p>Although these groups are meant to be light touch, the time involved in administering, mentoring, and of course participating in the WhatsApp group can be significant.</p>	<p>Allocating time for CPD in teacher’s busy schedule full of competing demands needs to be prioritized when setting up a VCoP. Setting a specific time of day for group participation can boost activity.</p>

8 Cilliers, J., Fleisch, B., Kotze, J., Mohohlwane, N., Taylor, S. & Thulare, T. (2022). Can virtual replace in-person coaching? Experimental evidence on teacher professional development and student learning. *Journal of Development Economics*, 155.

9 Motteram & Dawson (2019).

10 Varanasi, Vashistha, & Dell (2021).

What do we learn from a more detailed study of an experience in a lower-middle-income country?

A more careful examination of the experience in one lower-middle-income country (Tanzania) shows how these groups operate more concretely. Scholars in Tanzania—Kihwele and Mgata—recruited two WhatsApp groups comprising of 54 mathematics teachers (Group 1 with 38 members and Group 2 with 16 members) who were currently teaching in different secondary schools in the country.¹¹ The researchers then observed the interactions in the groups while attempting to answer the following questions: How do teachers use WhatsApp groups for CPD? What are the challenges and how can groups be improved?

They found that teachers used the groups to do the following:

- ▶ Share new online learning resources: e-books, past exam papers, syllabi, lesson plans, video recordings of classroom practices;
- ▶ Collaborate to solve difficult problems together;
- ▶ Collectively design curriculum content and lesson plans with a clear logical structure.

Like the studies in other contexts we draw on above, they find that the main challenges the WhatsApp groups faced were:

- ▶ Not all the information published was correct;
- ▶ Some members were inactive in the groups;
- ▶ Lack of prompt feedback from the members;
- ▶ Problems with internet connectivity.

They provide several recommendations for improving the use of WhatsApp groups for teacher professional development:

- ▶ Involve school leaders, subject experts, or experienced teachers in the group (for quality control of resources being shared);
- ▶ Provide internet access to teachers at a subsidized price;
- ▶ Allocate time in the school timetable for continuous professional development (a specific set time for group activity will help with more activity in the group);
- ▶ Train teachers on better use of WhatsApp forums, so that group members know their responsibility in the group

11 Kihwele & Mgata (2022).

Many teachers are already using WhatsApp, and leveraging an existing platform to help teachers boost their skills may make sense. Education systems that wish to explore virtual communities of practice can learn from the challenges faced in the past, as detailed above. But the lack of systematic evidence on either teacher practices or student learning is a major gap. We encourage systems that experiment with virtual communities to build in evaluations that will let them and others learn how best to use these platforms to contribute to the goal of every child achieving a quality education.

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Appendix A. The list of 23 studies examined

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