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Teachers' Attitudes Towards the Effectiveness of Collaborative Reflection Support Method:

The Impact of Achievement Goal and Community Identification

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ABSTRACT

This study aimed to explore how minute paper method (MPM) reconstructs the attitude towards the collaborative reflection among ten primary school English teachers with different levels of achievement goal (AG) and community identification (CI). Through a half-year intervention and a semi-structured interview, the following results were obtained: (1) Teachers with different AG and CI levels identified different difficulties and obstacles based on their prior collaborative reflecting experiences. The low AG and CI group expressed substantial fear of bonding with other team members, while the high level group expected more external resources and professional training; (2) MPM significantly improved teachers' overall attitude towards their reflective engagement and critical thinking, while the effectiveness of MPM was significantly affected by the level of teachers' AG and CI. Specifically, MPM was found to be most effective for the group with medium AG and CI levels. This study provides some valuable insights on collaborative reflection and teacher development research.

KEYWORDS

Collaborative Reflection, Achievement Goals, Community Identification, The Minute Paper Method, Primary School Teachers

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INTRODUCTION

As an integral part of successful teaching (Woolway et al., 2019), reflection is crucial to teachers' professional development (Brown et al., 2021; Buschor & Kamm, 2015; Jarvis et al., 2014; Van Braak et al., 2022) in that it not only provides teachers with opportunities to bridge theory and practice but also supports self and peer guidance (Woolway et al., 2019). In essence, there is a great deal of variation in how reflection is perceived, conducted, and evaluated, as well as in how much focus is given to it (Tight, 2023). Different from individual reflection, collaborative reflection refers to the procedures by which members of a specific community reflect through the outcomes of this process (Jiang & Zheng, 2021), prompting teachers to think through their professional responsibilities that they were not previously aware of or even ignored (Lin et al., 2013). Therefore, collaborative reflection among teachers emphasizes and prioritizes collective teaching and learning feedback and critical thinking in an educational context (Kalk et al., 2019; Shin, 2021).

Given its socially interactive nature, collaborative reflection is inevitably affected by multiple sociocultural factors, such as values, beliefs, ethics, cultural diversity, norms, and social relationships (Jiang, 2019; Jiang & Zheng, 2021). However, Korthagen (2004) revealed that teachers' collaborative reflection was often limited to superficial aspects of behavior. Tigelaar et al. (2008) emphasized the importance of teachers' beliefs and values to collaborative reflection, pointing out that teachers tended to focus narrowly on technical issues (the "how to"), but paid less attention to the underlying moral, political, and emotional dimensions. Kelchtermans and Hamilton (2004) specified the moral dimension as beliefs about codes and rules, norms and values, expectations and professional identity, while the political dimension was believed to refer to relationships with others including interests, power, loyalty, and responsibilities. Kreijns et al. (2003) argued that face-to-face interactions transmit visual and nonverbal cues, which are of great value in forming, establishing, and maintaining social relationships in a group context. Jiang and Zheng (2021) explored the hurdles that kindergarten teachers encountered in collaborative reflection and how to overcome these obstacles. Through underscoring the collaborative dimensions of teacher reflection and framing collaborative reflection as both a metacognitive mechanism and a social practice, their study emphasized the critical roles that team identity and cohesion played in successful collaborative reflection in a collective-minded cultural context.

In addition to sociocultural factors, numerous studies have explored the association between individual differences and collaborative reflection (Kalk et al., 2019), among which community identification (CI) and achievement goals (AG) have been identified as the two crucial variables that are worthy of attention (Huang et al., 2021). As a critical factor leading to successful community building (Qu & Lee, 2011), community identification is defined as an individual's sense of belonging to a group (Tajfel, 1978). Earlier studies showed that community identity played an important role in the establishment of team members' cognitive and emotional trust and understanding of the common good (Rockmann & Northcraft, 2008; Wann, 2006; Wann & Polk, 2007). Zumbrunn et al. (2014) highlighted the effects of sense of belonging on students' motivation and academic success. Other studies found that members with high CI levels were more likely to change their original thoughts and behaviors in line with the group's shared values or interests, with reduced stress, increased self-esteem (Chiu et al., 2015), greater team spirit (Chang et al., 2020; Ergün & Avcı, 2018), and a more positive mentality (Han & Harms, 2010). McNamara et al. (2021) illustrated that the specific geographic-based sense of belonging enabled the group members to better cope with community diversity and become more engaged and active in group activities. Apart from the impact of CI on collaborative reflection, Gutiérrez et al. (2019) looked at how reflective practice helped pre-service teachers build their professional identities. The results show that teachers strengthened their professional identities in three extremely pertinent ways, including gaining self-assurance in problem-solving capacity, enhancing appreciation of collaboration, and raising awareness of the necessity for teachers to change.

An achievement goal (AG) was originally defined as "a broad schema for understanding the complex connections among beliefs, emotions, behaviors, and organizational and cultural contexts" (Urdan & Kaplan, 2020, p. 9). It was evidenced that individuals with a stronger achievement goal demonstrated a significantly higher level of critical and reflective thinking (Mercier, 2017; Van Braak et al., 2022). However, Senko et al. (2011) questioned the impact of achievement goals on collaborative learning, arguing that unlike mastery goals, which may facilitate openness and candid sharing as well as tolerance for different opinions, performance goals may undermine peer relations and jeopardize social interactions in classroom teaching and learning contexts. Therefore, the design of collaborative reflection programmes should consider the effect of different types and levels of achievement goals (Kalk et al., 2019; Mercier, 2017), as collaborative reflection plays a crucial role in the construction of collaborative knowledge and shared behavioral regulation (Huang et al., 2021).

It is widely recognized that successful collective reflection cannot happen easily and automatically, because it requires explicit expressions of previous experiences through collaborative interactions, such as comparing and sharing for the purpose of gaining insights, and creating ideas for change in future work (Prilla & Renner, 2014; Katz & Earl, 2010; Scott, 2010). Therefore, this process calls for well-structured scaffolding and supportive approaches (Lin et al., 2013; Prilla et al., 2013; Prilla & Renner, 2014). Current supportive methods can be classified into online and offline tools. Online tools usually include virtual communities, blogs, electronic portfolios, and forums established through media and digital technology, which can be either synchronous or asynchronous and can be used to solve difficulties caused by limitations of time, distance, and space (Yang, 2009). The most obvious advantage of these online tools is the open, easy, flexible, and diverse learning community where teachers can collaborate to reflect on their own ideas freely (Yilmaz & Keser, 2016). Offline tools, in contrast, are defined as the authentic cognitive and systematic scaffoldings targeting analysis, comparison, synthesis, clarification, and selection, and are provided onsite to facilitate the mental processes of each reflective teaching practitioner and to improve their transferable skills in applying theory to practice (Blasco et al., 2010); examples of such tools are the Minute Paper Method (MPM), and the Six Thinking Hats Method (Jiang & Zheng, 2021). Murray (2016) introduced collaborative reflective teaching cycles (CRTC) as a method to engage teachers in reflection and collaboration applicable to both online and offline practice. The results illustrated that CRTC empowered the teachers to see the changes in their practice, reflect and ponder on tasks, and re-evaluate pedagogical strategies.

Despite substantial progress in the collaborative reflection research from both cognitive and social perspectives (Jiang & Zheng, 2021; Prilla et al., 2013; Prilla & Renner, 2014), much remains unknown about the impact of community identification and achievement goals on teachers' collaborative reflection, and the effectiveness of the supporting methods. Since an individual's reflective behavior in the collective context is always carried out for a specific purpose, it is certainly guided and regulated by their achievement goals or the motivations behind their intentions and actions (Huang et al., 2021; Chang et al., 2020; Thijs & Fleischmann, 2015). Meanwhile, mounting evidence has shown that the sharing behaviors and the level of participation within group reflections are significantly affected by community or group identity (Ergün & Avcı, 2018; Chang et al., 2020). Therefore, investigation into the effectiveness of the collaborative reflection supporting method among teachers with different levels of CI and AG is timely and of paramount importance, due to the scarcity of existing research. It not only provides valuable insights into the cultural and social dynamics influencing teacher attitudes, but also benefits educators, policymakers, and educational institutions seeking to enhance teacher professional development, ultimately impacting teaching practices in the educational landscape.

THEORETICAL FRAMEWORK

This study draws upon the sociocultural theory (Daniels, 2017; Karpov, 2014; Vygotsky, 1978) as the theoretical framework. It acknowledges that collaborative reflection, as a process of social interaction, is primarily affected by sociocultural factors, including cultural values, collaborative

beliefs, conversational interactions, and the context (Jiang & Zheng, 2021). Given the importance of social interaction and community identification among teachers, a sociocultural approach posits that as teachers work collaboratively and identify with a professional community, their achievement goals and reflective practices are influenced by the collective culture and values of the teaching community. Therefore, the sociocultural framework sheds light on the nuanced dynamics at play within the educational context, highlighting how the social and cultural context shapes the ways in which teachers of different CI and AG levels engage with new reflective methods in their teaching practices. The ultimate goal of this study is to explore how these sociocultural factors interact with individual differences to impact the overall effectiveness of the collaborative reflection supporting method in primary school settings.

THE PRESENT STUDY

MPM: The Minute Paper Method

Given its significant facilitating effect (Isaacs et al, 2013; Jiang & Zheng, 2021), the Minute Paper Method (MPM) was adopted and modified in the present study to improve the effectiveness of collaborative reflection among Chinese primary school teachers with different levels of achievement goals and community identification. The MPM is a combination of One-Minute Paper (OMP) and the Half-Sheet Response. The former is one of the simple tools adopted for measuring learning engagement and effectiveness (Ashakiran & Deepthi, 2013), while the latter is an assessment strategy initially developed by Weaver and Cotrell (1985) and later modified by Wilson (1986) and Angelo and Cross (1993). The participating teachers were required to first observe one class delivered by others, and then make comments and write them on a sheet anonymously. During weekly group reflection activities, all the sheets were randomly distributed to the teachers, who read the comments aloud; then, everyone was invited to comment on one another's feedback accordingly. The One-Minute Paper included three questions: (1) Whose class did you observe today? (2) What is the most important thing/skill you have learned today? (3) What questions remain unanswered? The Half-Sheet Response contained three questions: (1) Is the feedback on the sheet consistent with your comments? (2) Do you agree or disagree with the feedback on the sheet? And why? (3) Do you have any suggestions for the improvement of this teacher's teaching practice?

Research Questions

This study addressed the following questions:

RQ1: What obstacles do the Chinese primary school teachers encounter in their collaborative reflection? Are there any differences in obstacles and expectations among the teachers with different AG and CI levels?

RQ2: Does the new supporting method (MPM) improve the collaborative reflection of Chinese primary school teachers?

RQ3: Do achievement goals and community identification have an impact on the effectiveness of the MPM?

METHODS

Analytical Framework

This study utilized Thematic Analysis (TA) in order to analyze the content of the interviews. Clarke and Braun (2014) state that most research issues can be addressed by TA including those pertaining to people's attitudes, views, and practices as well as those related to the production and

representation of specific social and psychological objects and subjects in any given context. To be more specific, this study employed Clarke and Braun's (2013) six step data analysis process, i.e., data familiarization, code generation, combining codes into themes, themes review, determining themes significance, and reporting of findings. Braun and Clarke (2006) distinguished between two levels of TA: semantic and latent. In semantic themes, the analyst is interested solely in the surface meaning of the data, while in latent themes the focus is on the "underlying ideas, assumptions, and conceptualizations—and ideologies—that are theorized as shaping or informing the semantic content of the data" (p. 84). The analysis in this study identified themes at the semantic level and represented the themes on teachers' attitudes with regard to collaborative reflection and the impact of achievement goals and community identification.

Participants

Ten female English teachers (MAge=27.6 years old) from a primary school in Nanjing, Jiangsu Province, China, were randomly selected as the participants. All the participating teachers had a bachelor's degree or higher in teacher education, and on average they had 5.5 years of work experience. Prior to the study, the informed consent form was sent to each participant for approval along with detailed instructions on the experimental process of the study.

This qualitative study was conducted with three phases as presented in Table 1.

Pre-MPM Tests and Interview

The 3 × 2 Achievement Goals Questionnaire for Teachers (Mascret et al., 2017) was employed during the pre-MPM phase to measure the level of participants' achievement goals. The questionnaire was composed of three dimensions, including *Task*, *Self*, and *Others*. For each question, the participants were expected to indicate their level of agreement from 1 (strongly disagree) to 7 (strongly agree). This task showed a high split-half reliability of 0.907.

The Questionnaire for Disney World's Identities (Carlson, 2005) was modified to measure the level of community identification of the participating teachers. During the test, participants were required to indicate to what extent their self-image overlapped with the image of the school, by ticking the corresponding pairs of circles from 8 (complete overlap) to 1 (far apart). The test-retest reliability for this task was 0.938.

A semi-structured interview was conducted to investigate how participants evaluated their collaborative reflections, with seven questions:

1. How satisfied are you with your previous collaborative reflections?
2. Do you think collaborative reflection is necessary for your teaching? Is it helpful? Why?
3. Do you feel comfortable during collaborative reflections?

Table 1. Research procedure

Phase	Procedure	Time	Tools
Pre-MPM (3 months)	Pre-test	30 mins	AG and CI questionnaires
	Pre-interview	45 mins/participant	Semi-structured interview
	Collaborative reflection without MPM	2 hours/week	Non-MPM approach
During MPM (3 months)	Collaborative reflection with MPM	2 hours/week	MPM intervention
Post-MPM	Post-test	30 mins	AG and CI questionnaires
	Post-interview	30 mins/participant	Semi-structured interview

4. What about the goals you plan to achieve in your current teaching job? Are you satisfied with your performance? Why or why not?
5. How much do you feel that you belong to your school? Why?
6. What difficulties did you encounter during past collaborative reflections?
7. What ideal collaborative reflections do you expect to have?

Post-Test and Interview

The same CI and AG questionnaires for the pretest were used to examine the differences in collaborative reflection performance before and after the use of the MPM. As well, three open questions were added to collect the participants' views on the changes brought by the MPM supporting method, as follows:

1. Does this new method help with your collaborative reflection? How and why?
2. Has this new method changed your attitude towards collaborative reflection? How and why?
3. How does this new method inspire you towards collaborative reflection?

Data were collected mainly from three resources: (1) pre- and post-test questionnaires on teachers' achievement goals and community identification; (2) pre- and post-interviews with each participant; and (3) participatory observation during collaborative reflection activities. All data were recorded and transcribed independently through thematic and textual analysis by two experts in developmental psychology, who were blind to the research hypothesis of this study. The rater reliability (Cohen's Kappa coefficients) was 0.901.

The results of pretests showed a high consistency between the scores of achievement goals and community identification, which means that teachers with low achievement goals also scored lower on the community identification test, and vice versa (table 2). Accordingly, participants in this study were further divided into three groups. The Low-Level Group had two teachers coded as L1 and L2 who achieved the lowest AG and CI level. The Medium-Level Group had six teachers coded as M1 to M6 who achieved average AG and CI levels, and two teachers (H1 and H2) with the highest AG and CI levels were placed in the High-Level Group.

Table 2. AG and CI Score and Group Division in the Pre-MPM Phase

Group	Teacher	AG	CI	Total
Low-Level	T1	98	91	189
	T2	99	90	189
Medium-Level	M1	85	106	191
	M2	92	100	192
	M3	83	115	198
	M4	88	132	220
	M5	99	128	227
	M6	97	133	230
High-Level	H1	115	132	247
	H2	114	142	256

RESULTS

Research Question One

What obstacles have the Chinese primary school teachers encountered in their previous collaborative reflection experiences? Are there any differences in obstacles and expectations among the teachers with different AG and CI levels?

In the school context, collaborative reflection may not always be feasible due to constraints of time and space (Høyrup, 2004). Collin and Karsenti (2011) argued that successful group reflective activity involves more than sharing; it also requires long-term collaboration in mutual commitment and support to promote professional development. As a consequence, teachers may experience a variety of barriers and concerns such as heavy workloads, interpersonal tension and conflict, and lack of time and motivation regarding reflection and collaboration (Jiang & Zheng, 2021; Vangrieken et al., 2015). The results of the pre-MPM interview essentially verified previous findings; but, as expected, teachers with different CI and AG levels were found to encounter different challenges, even though they faced some common difficulties.

Common Obstacles

- **Scheduling Conflicts:** During the pre-interview, teachers from all three groups expressed their concerns about the scheduling conflict caused by the length of the collaborative reflection before the MPM was adopted. In general, their feedback was quite negative, reflecting a high degree of dissatisfaction.

I think it would be a pity to devote the whole morning to a meeting and put other things aside, and I hope the meeting can be shorter. You know, as a teacher, you need some time to deal with the issues regarding students and parents [L1].

The weekly reflective meeting is a bit long. Some notifications could be sent out in an email, while only those questions or topics that most need to be discussed should be included in the collaborative reflection activities [M2].

Spending three hours in the morning is not an efficient way of reflecting. I suggest shortening the meeting and sending the notifications by email [M4].

The three-hour meeting is a bit long, and everyone was tired, and the interactions became reluctant, hence, shortening the meeting is necessary in the future [H2].

- **Low Efficiency:** As expected, the interview results revealed low efficiency during the group reflection. Similar findings were reported previously by Jiang and Zheng (2021)—that collaborative reflection could become passive, superficial, and meaningless if participants were not fully engaged and had few opportunities to express their thoughts.

The first two hours of our collaborative reflection are more like a formal meeting. Each time, the group leader started with the introduction about what we had accomplished before, what we needed to accomplish in the future, and finally, who was in charge. I just listened and took notes almost the entire time [L2].

Each collaborative reflection is like a sum-up meeting dominated by the organizer, and we have few chances to give feedback or have in-depth discussions. Thus, the output is quite limited and the efficiency is far from satisfactory [M3].

During the collaborative reflection, we need to deepen our discussions and focus on the problems encountered regarding teaching practices and student management, rather than spending a whole morning attending a lecture. As far as I am concerned, the difficulties we encounter are still not satisfactorily dealt with. I don't think the current collaborative reflection is an ideal way to improve teachers' professional development [M5].

I feel the primary function of the current collaborative reflection is to convey messages from the top; in other words, it is more like making sure each team member knows what they need to do, and what they are expected to achieve [H2].

- **Passive Interaction and Poor Collaboration:** Krutka et al. (2014) emphasized the importance of collaboration, which is crucial to insightful and thoughtful communication and reflection. However, during the reflective discussions, the participating teachers' feedback on the collaboration was largely negative.

It doesn't seem to make a difference whether I interact with my colleagues or not, because the current meeting is about going there and listening. The whole process doesn't require many interactions. Thus, I don't think there are many good opportunities for cooperation and interaction [L2].

Our reflective meetings lack an innovative and scientific supporting method, and perhaps we should make them more effective. The current situation is that the teachers need to be better organized and focus on a specific theme in each activity [M3].

I just go there to take notes throughout the whole meeting. There are few opportunities for us to speak, interact, and express our concerns. We have to follow the pre-planned schedule determined by the organizer [H2].

- **Insufficient Reflection:** All three groups of teachers complained about the limited scope and depth of the reflections. For them, the current collaborative reflection was more like a meeting to collect feedback and convey requests from the top.

There is no doubt we are encountering teaching problems. However, our weekly collaborative reflection does not deeply explore those problems, so I could not take inspiration from others' solutions to create my own [L2].

Imagine a turtle crawling along with its heavy shell: this shell is the difficulty we encounter in our teaching practice. We focus on what we are going to do next and how we are going to do it. However, regarding problems such as curriculum implementation, it should have been reflected on and discussed. I hope we can sit down regularly and reflect on these problems before moving forward [M6].

At each meeting, there are too many items on the agenda, and teachers need more time to thoroughly discuss a particular topic or specific problem. From this point of view, reflection is relatively limited [H1].

The above feedback revealed the reality of the weekly meetings for collaborative reflection before the MPM was adopted. Even though all the teachers realized the important role played by the

collaborative reflection in professional development, they were far from satisfied with its effectiveness, due to insufficient cooperation and inadequate reflections on both problems and solutions.

Different Obstacles for the Three Groups

It is worth noticing that in addition to the common difficulties mentioned above, different feedback was revealed by the three groups of teachers with different AC and CI levels.

- **Fear of Group Bonding Characterized by Low AG and CI–Level Group:** The low AG and CI–level group expressed their deep and long-held concern and anxiety about staying with others during the reflection meetings. They believed all the other group members were relaxed, but not them, and this negative feeling directly or indirectly affected their active engagement in the collaborative reflection.

It is hard for me to be as engaged as other colleagues during the meeting. I don't have deep contact with others on a daily basis, so I can't help feeling uncomfortable and even nervous in a group context. I prefer to make reflections by myself. Thus, I believe my struggle to enjoy talking freely with other colleagues is a major issue for me [L1].

I am not good at speaking in public, as I don't have much communication with other colleagues in the school most of the time. When interacting with my colleagues, I am usually passive and have no idea how to be cooperative and supportive [L2].

- **Lack of Effective Supporting Methods Claimed by Medium AG and CI–Level Group:** In contrast to the other two groups, the medium AG and CI–level group emphasized that they were not satisfied with the current mode of collaborative reflection and called for better organization.

We are just expected to give general feedback about our own work progress and problems; we rarely focus on a specific topic for discussion, such as teaching strategies, class management, etc.; therefore, a more effective supporting method is needed to enhance the collaborative reflection, and I look forward to changes in the future [M5].

In my opinion, the current collaborative reflection is ill-structured; it begins and ends like a conference. I've seen some collaborative reflection activities in other schools; they use methods like mind mapping to bring people together around logically discussing and reflecting on a topic, and I think we just lack that kind of approach [M3].

- **Lack of Professional Training Expected by High AG and CI–Level Group:** The high AG and CI–level group expressed strong wishes for professional training on collaborative reflection *to improve their professional development.*

Our current collaborative reflections leave much to be desired, due to the lack of communication with other colleagues from different grades and subjects. Besides which, we need more connections with external resources, which could be a big challenge to the school [H1].

Our collaborative reflection is only conducted between ourselves. I think this could be a detriment to its quality that may impede our professional development. I believe high-quality collaborative reflection cannot ignore external professional training and guidance. Even though it poses a significant challenge for the school, it makes a difference [H2].

Common Expectations

When asked what kind of collaborative reflection they were looking for, all three groups of teachers desired to improve the effectiveness of the collaborative reflection, hoping to shorten the length of the meetings but enhance the dynamic interaction and communication, thus making the reflections go deeper in a more collaborative and effective way rather than passively listening and taking notes.

If some of the message could be conveyed by email and core topics could be selected for the focus of our meeting, the time may be shortened to 1 or 1.5 hours so as to improve the effectiveness of our collaborative reflective discussion [L2].

I feel tired at the end of each meeting, as it lasts too long. I hope our seminars are shortened to two hours and leave more time for the problems and solutions that require our reflection [M2].

I expect a short but effective collaborative reflection, because a short but effective meeting can keep teachers energetic and responsive during the cooperative discussion [H2].

Different Expectations From the Three Groups

Teachers with different AG and CI levels also provided different feedback when asked what changes they would like to see in the future.

- **More Relaxing Context Required by Low-Level Group:** Teachers with low AG and CI levels expressed their wishes to make reflections in a more relaxing atmosphere or context, such as a virtual meeting or online.

I prefer to share my reflective ideas with others via email rather than communicating face to face. I would feel more comfortable and relaxed if I could stay in my office while exchanging opinions online [L1].

I hope to be given more time to think about the questions before communicating with others. The current reflective meetings do not suit me because I am not good at communicating with others face to face. Actually, I prefer to write down my ideas instead of talking, and I also prefer to read other teachers' feedback [L2].

- **More Interactive and Autonomous Reflection Expected by Medium-Level Group:** The medium-level group made requests for an in-depth reflection that would harness their teaching practice.

The ideal collaborative reflection in my opinion should be autonomous, interactive, and problem-oriented, with every teacher actively engaged in the discussions on the difficulties encountered in their teaching practice [M3].

I hope future collaborative reflection meetings could enhance the interactions between experienced and novice teachers and help us obtain valuable suggestions and guidance [M6].

- **Professional Supervision Expected by High-Level Group:** Unlike the other two groups, teachers in this group expected to be provided with professional guidance for collaborative reflections, such as suggestions from professional experts or the experienced trainers.

It would be very helpful if we could have professional tutors to supervise or guide us in how to make reflections in a collaborative way. By doing so, can we make the reflective meetings more conducive to our teaching practice [H1].

I hope for my classes to be observed and mentored by professional instructors, or teaching experts from upper grades or other schools, who may regularly join the reflective discussions on the problems I am facing so as to help me improve my teaching. [H2].

Research Question Two

Does the new supporting method (MPM) improve the collaborative reflection of Chinese primary school teachers?

The data from the observation and follow-up interviews demonstrated significant positive impact of the MPM on the effectiveness of teachers' collaborative reflections. In general, teachers were more welcoming of this supporting method, regardless of their AG and CI levels.

Common Significant Facilitating Effects of the MPM

- **Reconstructing the Dynamic Organization and Promoting Interactions:** The results show that the MPM changed the previous one-way communication to a large extent. Instead of listening and taking notes in a passive way, teachers were more actively engaged in the group discussion and reflection based on the problems and solutions revealed by their responses to the interview questions.

The length of the collaborative reflection meeting is much shorter now, which makes me feel more relaxed because I can first read my colleagues' feedback directly and become better prepared for the reflective discussion coming up. Through observing other colleagues' classes, we grow more familiar with each other, which helps reduce my anxiety. I believe it's a good start for change [L1].

In the previous collaborative reflection, as the group leader, I was always the person to present and lead the whole meeting, and each team member had to follow the pace I set, which made me very tired. However, the MPM enables us to be more actively engaged, critical, and problem-oriented, based on the class observation [H1].

Obviously, within the framework of the MPM, we are much more engaged with the interactions, as feedback is given anonymously to make us more relaxed when making comments. Immediate feedback after the class observation is very effective in deepening our discussions on the problems encountered in classroom teaching [M5].

- **Improving AG and CI levels:** Table 3 presents the scores of AG and CI both pre- and post-test. The adoption of the MPM generally improved the AG and CI levels of all the participating teachers—but significant individual differences can be found. The greatest progress was achieved by the teachers with medium AG and CI levels, while the group with low achievement goals and a low sense of community identification made the least progress.

It can be inferred from the above responses that the MPM inspired each participant to become more engaged in communication and interactions and give more critical and reflective feedback in a collaborative manner, regardless of their AG and CI levels. Apparently, with the MPM, teachers were no

Table 3. Pre- and Post-test scores of AG and CI

Teacher	Pre-Test			Post-Test			Changes	
	AG	CI	Total	AG	CI	Total		
T1	98	91	189	102	93	195	↑	6
T2	99	90	189	103	92	195	↑	6
T3	85	106	191	99	115	214	↑	23
T4	92	100	192	98	110	208	↑	16
T5	83	115	198	94	120	214	↑	16
T6	88	132	220	99	132	231	↑	11
T7	99	128	227	110	130	240	↑	13
T8	97	133	230	109	134	243	↑	13
T9	115	132	247	123	133	256	↑	9
T10	114	142	256	121	142	263	↑	7

AG: Achievement Goal
CI: Community Identification

longer passive receivers but transformed into autonomous builders of collaborative reflection activities, thus increasing their sense of belonging and their motivation towards professional achievement.

Research Question Three

Do achievement goals and community identification have any impact on the effectiveness of the MPM?

Different Impact of the MPM on Teachers With Different AG and CI Levels

Consistent with expectations, the MPM was found to have varying impacts among the participating teachers depending on their AG and CI levels. However, the most significant changes brought by the MPM happened to the teachers with medium AG and CI levels (M1–M6), which was not in line with our expectation. In spite of the overall progress in achievement goals and community identification, after the MPM was employed, teachers of the medium group reported much higher levels of satisfaction with the collaborative reflection activities than the other two groups, even though this group had the lowest satisfaction with previous collaborative reflection activities.

Under the framework of the MPM, it is easier for us to obtain critical peer feedback and learn many innovative ideas from others. The MPM is more like a brainstorming session, which encourages active participation and innovation. With the support from the MPM, I become more engaged in the discussions on the problems encountered, through which I have obtained valuable solutions. I am now more confident in solving teaching difficulties [M3].

The use of the MPM makes our collaborative reflection more interesting and effective. This is just what I am looking for. The teaching skills and strategies I have learned from my peers could improve my class a lot. I really appreciate this supportive approach [M4].

The group of teachers with high achievement goals and a high sense of community identification (H1–H2) were found to achieve some level of progress, but not as significant as that of the medium

group. This finding was not only reflected by their responses to the interview questions but also by the differences between the pre- and post–AG and CI test scores.

The application of the MPM makes me excited because it elevates me from active participation to more critical thinking, which further inspires me to explore new problems and solutions. It is definitely helpful to our professional improvement. However, I believe if more professional training could be provided, I could achieve greater progress in my teaching skills, which is not easy to get merely from peers [H1].

The MPM can help find and solve problems encountered so my teaching skills can be constantly improved. However, I still wish for external professional training or mentorship to guide my collaborative reflection [H2].

The teachers that showed the least change were the group with low achievement goals and a low sense of community identification (L1–L2). In the post-interview, when asked about the influence of the MPM on their collaborative reflections and teaching practices, both claimed there was no significant difference. They still needed help to better cope with the difficulties previously encountered in their reflection and teaching practices.

My teaching job currently causes me the same feeling of pressure as before. I am still acting as a listener during the collaborative reflection meetings unless I am asked to speak. Therefore, I do not see the necessity of making any changes, since there is no way for me to apply what I have heard in the group reflection to my teaching practice. Put simply, I hope to maintain the status quo [L1].

When using the MPM, I have to read aloud other people's comments on my teaching practice, which makes me embarrassed. I am not particularly eager to interact with my colleagues in a group context; maybe I need to spend more time getting used to this innovative reflection method [L2].

DISCUSSIONS AND CONCLUSION

Unlike previous studies on the effectiveness of collaborative reflection methods, this study highlighted the impact of individual differences in achievement goals and sense of community identification on Chinese primary school teachers' attitudes towards the effectiveness of the MPM, a new collaborative reflection supporting method. The results mostly verified that the supportive reflection approach was not equally effective for everyone, but was mediated by teachers' achievement goals and sense of group belonging.

The results of this study verified the findings of previous studies (Clarà et al., 2019; Kalk et al., 2019; Sajon et al., 2022; Shin, 2021) that collaborative reflection is of great significance to teachers seeking further support from peers for professional improvement and personal development. It enhances people's understanding of collaborative reflection as a social process, which is influenced by the form of collaboration, the collective atmosphere, peer cooperation, and other factors (Thijs & Fleischmann, 2015; Tigelaar et al., 2008; Woolway et al., 2019).

Furthermore, the findings of this research also demonstrated the limitations of the current group collaborative reflection activities in schools, given the relatively low satisfaction level of the participating teachers. The results clearly show that teachers' satisfaction with the current group collaborative reflection activities needs to be improved, because the current activities failed to satisfy the increasing expectation for self-development among Chinese primary school teachers. It can be generalized that many current collaborative reflection activities are still traditional and rigid in form, and teachers cannot make good use of such activities to discuss relevant topics with their peers, such

as curriculum design, teaching skills, and other teaching-related issues. To this end, our study adopted a supportive method—the MPM—to reconstruct the framework of collaborative reflection activities. After breaking through the previous single form, teachers were found to significantly improve their participation in cooperation and critical thinking as a whole. When using this method, they were able to be more focused on discussions and reflections about their own classroom teaching, thus gaining and absorbing ideas, comments, and suggestions from others. These findings confirm the importance of an effective collaborative reflection method for teachers' group reflection activities and the possibility of changing traditional group collaborative reflection activities by using the new approach.

Overall, the most important contribution of this study is to reveal the impact of personal achievement goals and community identification on teachers' collaborative reflection, highlighting the importance of individual differences in a collective environment. The data comparison shows that a supportive approach did not make the same difference for everyone—for teachers with low achievement goals and sense of group belonging, follow-up research may need to seek other supportive ways to meet their needs. Therefore, it should be noted that collaborative reflection is not merely a cognitive exercise, but also a social activity. The participants themselves, and the interaction and cooperation among the participants, are elemental and crucial factors. Therefore, individual achievement goals and community identification play an important role in such group collaborative reflections. As demonstrated in this study, the higher a teacher's self-achievement goals were, the better they would perform in collaborative group reflection activities, engagements, and critical thinking. Furthermore, the stronger a teacher's community identification was, the better they performed in terms of positive feedback, interaction, and cooperation. Moreover, the teachers who performed better in these aspects showed the greatest positive changes in teaching quality and self-development after using the MPM. This suggests to decision-makers that to effectively improve teachers' teaching quality, they should not only provide professional supports but also enhance the sense of community identification. As for individual staff, in addition to actively participating in professional development activities such as training, collaborative reflection, and forums, they should also enhance their achievement goals and tap into their inner drives, such as the passion for education and desire for success.

Limitations

This study has obvious limitations. First, it only focused on primary school teachers; hence, the investigation of other educational environments, such as middle school and university, may produce more interesting results. Secondly, the teachers involved in this research were all English teachers, and the results are limited to a single subject. If conditions permit, subsequent research can be extended to teachers in other subjects, reducing the limitation of subject characteristics as a factor. Finally, since there are more female English teachers in primary schools in China, and the teachers participating in this study were all female, future studies can take gender into account and focus on male teachers or a mixed group, to enrich the literature in this area.

CONFLICT OF INTEREST

The authors declare there is no conflict of interest.

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