***The Impact of Teachers' Professional Collaboration in Taiwan:
Application of the Talis 2018 Junior High School Teacher's Database***

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Abstract
According to the Organization for Economic Co-operation and Development (OECD), professional collaboration is an essential support tool for teachers working in challenging environments. It has been identified as one of the five pillars of teacher professionalism. Scholars have indicated that professional collaboration among teachers is one of the essential directions of current educational reform. This study conducted a multi-level analysis using Hierarchical Linear Modeling (HLM) to examine the factors influencing teachers' professional collaboration. The findings indicate the following. (1) Teachers' self-efficacy did not have a significant effect on professional collaboration; (2) The higher teachers' awareness of teaching beliefs, the more willing they were to collaborate professionally; (3) Teachers' job satisfaction did not have a significant effect on professional collaboration; (4) Teachers' difficulty in collaborating professionally was due to busy work schedules, family responsibilities, and a lack of incentives; (5) The higher the teachers' innovative teaching climate, the more willing they were to collaborate professionally; (6) Teachers prioritize teacher-student relationships, which have a significant positive impact on professional collaboration among teachers; (7) Professional development activities negatively impacted professional collaboration, as teachers were more likely to participate in their own independent qualification programs (degree programs). The study concludes with recommendations to facilitate and promote professional collaboration among teachers.

Keywords: Job Satisfaction, Teacher Self-Efficacy, Teacher Professional Collaboration, Teaching Belief, Teaching and Learning International Survey (Talis)

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Introduction

Educational reform relies on teacher interaction and cooperation to achieve educational tasks and goals (Brownell et al., 1997). Professional collaboration among teachers has recently been regarded as an essential direction of educational reform (Morse, 2000). According to the Organization for Economic Co-operation and Development (OECD) (2020), professional collaboration is essential to support teachers to work in challenging environments. It has been identified as one of the five pillars of teacher professionalism. This is because a teacher's work is holistic and dynamic, and teachers often teach students with varying abilities and learning styles. Therefore, teachers require feedback and support, and the relationships and interactions between teachers and colleagues are significant. Teachers can also learn from each other through professional collaboration, including sharing their professional knowledge and learning from each other's teaching experiences via professional learning communities; this ultimately improves the quality of teaching and enhances student learning effectiveness (OECD, 2020). Therefore, professional collaboration provides teachers with more learning opportunities and supports teachers in coping with the challenges and complexity of teaching (Darling-Hammond, 2010).

The Teaching and Learning International Survey

In the Teaching and Learning International Survey (TALIS) 2013, countries such as Finland, Canada, and Singapore were identified as the top performers. Their common feature is a high degree of professional collaboration among teachers (Schleicher, 2016). Teaching is a multifaceted profession. If teachers are encouraged to engage in professional practice inquiry in addition to their teaching role, they can take ownership of their work holistically (Ainley & Carstens, 2018). Therefore, the TALIS focuses on collaboration as a teacher's professional practice; it also examines the role of collaboration in teacher professional development and innovative teaching (Ainley & Carstens, 2018). In a collaborative professional work environment, teachers create a collective force that initiates and sustains continual improvement in their professional practice so that each student they teach receives the highest quality of education possible (Pugach & Johnson, 2002). Empirical studies indicate a positive impact of teachers' professional collaboration on student achievement (Chen et al., 2018), linkages with teachers' beliefs about teaching (Sannen et al., 2021), and the promotion of school success (Garcia-Martinez et al., 2021). Such findings suggest the positive impact of teacher professional collaboration. However, there is a lack of research exploring what factors facilitate teachers' professional collaboration. A clear understanding of the factors affecting teachers' professional collaboration will help to encourage and promote it to ensure teaching quality and student learning.

Based on the above, the importance of professional collaboration among teachers is evident. However, it is often challenging for teachers to collaborate professionally because, under the educational sector's current system, teachers are likely to run their classrooms in a kingly manner. Teachers are accustomed to a culture of independent teaching and learning and a preference for personal autonomy, making collaborative activities among teachers less desirable (Somech, 2008). Although teachers are aware of the positive impact of professional collaboration on teaching quality and student learning outcomes, they still rarely engage in professional collaboration. For instance, Schaffhauser (2018) found that 44% of teachers did not go to another classroom to obtain ideas for teaching or observe feedback. Furthermore, the findings indicate that only 38% of teachers were willing to engage in a collaborative activity; the rest of the teachers never shared their teaching experiences or classroom

innovative content with other teachers. Johnson (2003) suggests that teachers are negative and reluctant to collaborate because they perceive that it leads to increased workload and a loss of pedagogical autonomy. Yet, teacher professional collaboration is an essential component of educators' professional development. However, teachers primarily tend to work in isolation and autonomously (Schaffhauser, 2018). Therefore, the present study conducted an in-depth discussion on the factors that may affect teacher professional collaboration.

Professional collaboration includes a wide range of school activities (Goddard et al., 2007). It can be presented in various forms, including peer sharing, professional learning communities, teacher teams, and professional networks (Vangrieken et al., 2015). Question 33 in the TALIS 2018 survey comprised the Professional Collaboration Questionnaire, including four questions on "Collaborative Teaching," "Observational Learning," "Cross-Classroom Teaching," and "Participating in the Community." According to the TALIS 2018 results, the percentages of Taiwan's junior high school teachers who answered 'never' and 'once a year or less' for the four questions on professional collaboration activities were 79.8%, 52.8%, 70.2%, and 30.1%, respectively. This reflects that more than half of the teachers seldom participated in professional collaboration activities. Hence, the influencing factors behind this phenomenon should be further explored. The present study used the results of the Teaching and Learning International Survey (TALIS 2018) conducted by OECD in 2018 for secondary database analysis. We conducted a multilevel analysis through Hierarchical Linear Modeling (HLM) to identify the factors affecting teachers' professional collaboration. This study's results can help provide a reference for promoting teachers' professional collaboration in Taiwan.

Conclusion

1. Conclusion

The present study focused on Taiwan junior high school teachers in the TALIS 2018 survey to explore potential factors influencing professional collaboration. After conducting analysis and discussion, the following conclusions can be put forward.

(1) Teacher self-efficacy does not significantly impact professional collaboration.

This finding suggests that self-efficacy alone cannot influence teachers' performance in professional collaboration. Furthermore, the descriptive analysis of the self-efficacy items indicates that Taiwan junior high school teachers tend to be overly focused on classroom discipline and rules, which can decrease their willingness to engage in professional collaboration. Teachers paying more attention to "instructional practices" and "student engagement" may promote professional collaboration.

(2) Teacher teaching beliefs significantly positively impact professional collaboration.

The results of the present study indicate that when teachers perceive a higher degree of teaching beliefs, their willingness to engage in professional collaboration also increases. Furthermore, the descriptive analysis of the teaching beliefs items shows that when teachers predominantly hold "constructivist teaching" as their teaching belief, their willingness to engage in professional collaboration is greater. Thus, teachers with student-centered teaching beliefs are more likely to recognize that professional collaboration positively impacts

teaching and are more inclined to actively engage in professional collaboration with other teachers. Conversely, if teachers hold a teacher-centered "direct instruction" belief, it may decrease their willingness to engage in professional collaboration.

(3)   Teacher job satisfaction does not significantly impact professional collaboration.

This finding suggests that teacher job satisfaction cannot independently influence teacher performance in professional collaboration. Furthermore, the descriptive analysis of the job satisfaction items shows that "all in all, I am satisfied with my job" and "I enjoy working at this school" received the highest scores among the four job satisfaction items. Furthermore, "I would like to change to another school if possible" received the lowest score, indicating that most junior high school teachers in Taiwan are satisfied with their current school jobs. However, the fact that teacher job satisfaction cannot influence teacher performance in professional collaboration may be due to the tendency for teachers in Taiwan to work independently, which could explain the higher job satisfaction levels.

(4)   The barriers to participating in professional development activities significantly negatively impact professional collaboration.

This study's findings suggest that the greater the barriers to participation, the lower the willingness to engage in professional collaboration. Moreover, teachers' challenges engaging in professional collaboration activities are directly related to barriers to participating in professional development activities, such as high work stress, heavy family responsibilities, and a lack of incentives and school support.

(5)   Teaching innovation has a significant positive impact on teacher professional collaboration.

This finding indicates that when teachers perceive a higher innovative teaching climate, their willingness to engage in professional collaboration increases. Furthermore, if a school fosters an innovative teaching environment, it can enhance the impact of teachers' perceived professional collaboration on teaching. Therefore, creating an innovative and open teaching environment allows teachers to be in a trusting atmosphere of mutual learning; they can become advisors to each other, thereby promoting professional collaboration among teachers.

(6)   Teacher-student relationships significantly positively impact teacher professional collaboration.

The findings of this study indicate that when teachers perceive a better teacher-student relationship, their level of professional collaboration is also higher. Furthermore, the descriptive analysis of the teacher-student relationship items shows that the average scores for "most teachers believe that the students' well-being is important" and "teachers and students usually get on well with each other" were the highest among the four teacher-student relationships items. This result indicates that most junior high school teachers in Taiwan emphasize student well-being and maintaining positive relationships with their students. Therefore, when teachers prioritize student well-being, their willingness to engage in professional collaboration is higher because collaboration can lead to better student learning outcomes.

(7) Professional development activities significantly negatively impact teachers' professional collaboration.

This study's findings indicate that the more teachers participate in professional development activities, the lower their willingness to engage in professional collaboration. The study results suggest that most junior high school teachers in Taiwan participate in activities related to qualification and certification courses, graduate degree programs, and visiting school organizations. These types of professional development activities are typically pursued independently by individual teachers. However, participation in face-to-face physical courses that require professional collaboration among teachers is comparatively minimal.

2. Recommendations

(1) Encouraging teachers to collaborate on teaching is a method to enhance "instructional practices" and "student engagement".

This study's research findings indicate that teachers' excessive focus on classroom discipline and rules makes them less willing to collaborate professionally. Therefore, we recommend that teachers should incorporate diverse teaching and assessment strategies in their classrooms to help students prioritize learning and facilitate critical thinking. Additionally, they should avoid investing excessive effort in controlling disruptive behaviors in the classroom and enforcing classroom rules.

(2) Encouraging teachers to engage in critical thinking and group instruction can help establish a professional collaborative belief in constructivist teaching.

The research findings indicate that teachers engaged in professional collaboration predominantly hold constructivist teaching beliefs. Therefore, we recommend that teachers assign tasks in the classroom that require students to engage in critical thinking and encourage them to work together in groups to find solutions to problems. Additionally, allowing students to independently determine the steps to solve complex tasks can help establish a professional collaborative belief in constructivist teaching.

(3) Guiding teachers in balancing their family and work responsibilities can reduce barriers to participating in professional development activities.

The research findings suggest that teachers' reluctance to engage in professional collaboration is influenced by factors such as heavy workloads, excessive family responsibilities, and a lack of incentives for participating in professional development. Therefore, we recommend that schools reduce teacher workload stress and provide support and encouragement to teachers, making them more willing to engage in professional collaboration. Additionally, schools should emphasize the value of participating in professional development to enhance both intrinsic and extrinsic motivations for teachers.

(4) Creating an atmosphere conducive to teaching innovation within schools can positively impact instruction.

Schools should encourage teachers to continually innovate in their teaching environments and provide opportunities for instructional innovation activities. Teachers who are part of an

innovative teaching culture are more inclined to collaborate professionally and collaborate with peers to create innovative teaching content, thereby enhancing instructional quality.

(5) Establishing professional development communities for teachers and promoting collaborative professional collaboration training can be beneficial.

The research findings indicate that teachers are more inclined to participate in individual activities such as certification courses, degree programs, school visits, and online courses, which may reduce their willingness to engage in professional collaboration. Therefore, we recommend that schools organize in-person courses, seminars, and teacher professional communities that require teachers to collaborate professionally.

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