



Hindrances to Tighter Interprofessional Collaboration in Singapore: A Qualitative Study on Primary and Secondary School Counsellors

Ryan Wei Xiong Chin¹ · Poi Kee Low¹

Accepted: 17 January 2025
© The Author(s) 2025

Abstract

Interprofessional collaboration (IPC) is defined as the process by which professionals from different roles coordinate their efforts to provide a smooth, coherent delivery of services. In this study the current literature on the Singapore context through the perspectives of school counsellors was highlighted. This study aims to enhance understanding of the nature of IPC and identify factors that hinder and facilitate IPC. A qualitative study design was employed, conducting face-to-face and online semi-structured interviews with 10 school counsellors who are working/had worked in mainstream primary and secondary schools in Singapore. Reflective thematic analysis was utilised for data analysis. Three main themes relating to the nature of IPC emerged: (1) *School Counsellors Recognised the Essentiality of IPC*, (2) *Evolving Relationships*, and (3) *Adapting to Multifaceted and Dynamic Situations*. Subthemes related to factors influencing IPC. The three main themes contributed to the overarching theme, *Struggles of Engaging in IPC*, that school counsellors faced, whereby their strong desire to collaborate was hindered by barriers faced. Implications to research and practise are discussed.

Keywords Interprofessional collaboration · Interdisciplinary collaboration · Singapore · School counsellors · Youth mental health

Mental health is a pressing concern in Singapore, prompting efforts to address the strains on the mental health system by increasing the number of professionals by 40% (Goh, 2024). To accommodate the influx of professionals, enhancing

✉ Poi Kee Low
frederick.low@jcu.edu.au

Ryan Wei Xiong Chin
ryan.chin@my.jcu.edu.au

¹ James Cook University (Singapore campus), Singapore, Singapore

collaborative processes is crucial to effectively coordinate services (Heatly et al., 2023; Körner et al., 2016; Leclerc et al., 2014; Trivedi et al., 2013).

School counsellors are often at the forefront of youth mental health services, acting as interventionists and orchestrating support networks for students (Chong et al., 2013; Kok, 2013; Yeo et al., 2012; Yeo & Lee, 2014). Beyond their core responsibility of providing counselling, they engage internal (e.g. teachers and principals) and external (e.g. psychologists, social workers, and youth workers) stakeholders. Most notably, school counsellors act as a “bridge” between school and external agencies, ensuring the alignment and coherence of services (Chong et al., 2013; Yeo & Lee, 2014). Given the intricate relationship between mental health issues and various aspects of youths’ lives, integrating school interventions is imperative (Brooks et al., 2013; Lim & Wong, 2018; Tausendfreund et al., 2016). The significance of school counsellors in offering holistic support to students underscores the need to understand and improve collaborative processes.

In the context of Singapore’s school counselling, social care, and mental health systems, Interprofessional Collaboration (IPC) and interdisciplinary collaboration refers to the process where professionals with overlapping roles coordinate their efforts to deliver smooth and coherent services. This often involves recombination and reformation of team members to achieve coherence of services (Choi & Pak, 2006; Low, 2019). While IPC may involve internal stakeholders, this study concentrates on external stakeholders to improve generalisability to local research.

Past IPC Research

Local research exclusively investigating IPC with school counsellors has been limited. Previous studies incorporated viewpoints from external and internal stakeholders, including schoolteachers (Low, 2015a), external counsellors (Low & van der Laan, 2023; Low, 2014, 2015b), and youth workers (Lim & Wong, 2018). These studies emphasised the crucial role of school counsellors while highlighting shortcomings in their collaborative behaviours. Identified issues include a lack of knowledge regarding community resources (Low, 2014; Low & van der Laan, 2023), excessive or inadequate observance of confidentiality (Lim & Wong, 2018; Low & van der Laan, 2023; Low, 2014, 2015a, 2015b), and prioritising of school agendas over other pressing needs (Lim & Wong, 2018; Low, 2014). These and other findings emphasise the necessity for closer collaboration (Chong et al., 2013; Kok, 2013; Lim & Wong, 2018; Low, 2015b, 2019).

The existing literature available hints at the complex challenges faced by school counsellors. They struggle to balance the demands of stakeholders (Low, 2009, 2015b; Yeo & Lee, 2014), lack recognition for their efforts (Yeo & Lee, 2014), and encounter difficulties in dedicating time for meaningful interventions (Chong et al., 2013; Yeo & Lee, 2014). Most studies used qualitative analyses (Lim & Wong, 2018; Low & van der Laan, 2023; Low, 2015b) to investigate interactions between heterogeneous groups (e.g. school counsellors and youth workers; Lim & Wong, 2018). Furthermore, without incorporating within-group analyses, resultant themes identified through thematic analysis would be diluted by the commonalities between

populations, failing to capture the nuances within the school counselling population (Larkin et al., 2019). To adequately diagnose the existing challenges, a holistic understanding focusing on the school counsellors' perspective is needed.

Notably, two studies have solely focused on the school counsellors' perspective in Singapore (Hsi & Boman, 2023; Kok, 2013). Kok (2013) delved into the role of mainstream school counsellors and identified challenges within the school system. Meanwhile, Hsi and Boman (2023) reported on challenges in developing the professional identity of tertiary-level school counsellors. Although both studies provide valuable insights into the challenges within the profession, the direct challenges of working with external stakeholders remain vague.

In the United States (US), research on IPC has shown promising student outcomes, with studies demonstrating improvements in student outcomes by employing collaborative structures (Bates et al., 2019; Weist et al., 2022). However, the differences in structures between local and international mental health systems limit the generalisability of these findings to the Singaporean context (Chong et al., 2013; Weist et al., 2022). Nonetheless, the potential benefits warrant a deeper look into improving IPC in Singapore.

Research Questions

In light of these considerations, this study adopts a qualitative approach to gain insights into IPC from the perspective of school counsellors. More specifically, the study aims to explore the nature of IPC activities as perceived by school counsellors and identify facilitators and barriers that influence these processes. By exploring these research questions within the Singapore mental health space, this study seeks to understand the nuances of these interactions, thereby informing potential changes in interventions and policies to improve IPC. In summary, this study seeks to answer the following questions:

- (1) How does IPC look like from the perspective of school counsellors?
- (2) What are the factors of IPC (facilitators and barriers) according to school counsellors?

Methods

Approach

A cross-sectional study using semi-structured interviews best described this study. Reflexivity was exercised throughout the interview and analysis process, involving awareness of personal biases and continual reflection on pre-existing knowledge (Potter & Hepburn, 2005). During interviews, efforts were made to remain attentive to participants' responses and to immerse oneself in their worldview during analysis. A bottom-up approach was adopted in the analysis, drawing interpretations based on interviewees' responses.

Procedure and Ethical Considerations

Purposive sampling of participants was utilised, whereby the Principal Investigator reached out to school counsellors who met the selection criteria, described in the following section. Participants then referred other participants who met the selection criteria, forming a chain referral sampling method (Penrod et al., 2003). All willing participants were given the option of face-to-face or online interviews (via Zoom). Demographic information including name, age, gender, years in service, current or past schools worked in, and previous job experiences were collected upon confirmation.

Before interviews began, informed consent was sought. A semi-structured interview schedule was employed. Questions were generated from relevant literature reviews (Hsi & Boman, 2023; Lim & Wong, 2018; Low & van der Laan, 2023; Low, 2009, 2014, 2015a, 2015b) and predetermined discussion areas. The broad sequence of questions is as follows: (1) alignment in the definition of IPC, (2) roles played by school counsellors and external professionals, (3) positive and negative characteristics of IPC, (4) suggestions to improve IPC (see Appendix for the interview schedule). Interviews lasted about 60 min each.

Participants

Participants are school counsellors who had worked in public primary or secondary schools for at least 1 year and had not left the role for more than 2 years. These parameters were designed to capture perspectives representative of school counsellors in Singapore schools (Low et al., 2017).

The final sample consisted of 10 school counsellors who had worked in schools evenly spread across the country (see Table 1 for demographics). Three participants chose to have face-to-face interviews, while seven others were conducted via Zoom. Their average age is 32.4 years. One participant had previously worked as a mainstream schoolteacher, being the only one to have worked in an education field. Participants were abbreviated in order of interview conducted, from P1 to P10.

Table 1 Demographics of participants

Gender		Type of school		Years in service		Number of participants	
Male	2	Primary	6	Average	4.2	Remaining in service	6
Female	8	Secondary	4	Range of years	3.8–4.8	Left within last 2 years	4

As of 2023, September 28

Data Analysis

Reflexive thematic analysis (Braun & Clarke, 2021) was employed, with the PI serving as the sole coder. After data familiarisation, common patterns were drawn from interviews to form themes. This was conducted first internally within each interview before identifying themes across interviews. Table 2 outlines the process.

Precautions were taken at each stage to mitigate bias. Reflexive reviewing and theme discussions with a co-investigator were regularly carried out during the data collection and analysis phases of the study. The co-investigator has intimate knowledge of the subject matter. Themes were refined reiteratively whenever new and distinct subthemes emerged, paying attention to possible biases from pre-existing knowledge. Table 3 shows the resultant themes. (De-identified data will be made available on request.)

Findings

Three main themes emerged regarding the nature of IPC behaviours: (1) School counsellors Recognised the Essentiality of Collaboration, (2) Evolving Relationships, and (3) Adapting to Multifaceted and Dynamic Situations. The subthemes further detail the themes' impact on IPC processes (refer to Fig. 1). Additionally, an overarching theme titled "Struggles of Engaging in IPC", encapsulates the challenges encountered by school counsellors in deciding to collaborate.

Table 2 Steps and precautions taken during analysis

Step	Process description	Precautions
Data familiarisation	Listening to recordings Clean recordings for technical issues Transcribing each interview verbatim	Member checking (Creswell & Miller, 2000) with participants to improve fidelity
Generating codes	Labelling significant points succinctly	Use of low-interference descriptors to capture latent meanings
Generating themes	1st round: within-subjects themes ↓ 2nd round: between-subjects themes ^a	Reflexive reviewing
Reviewing themes	Themes reviewed Eliminating and integrating themes	Consultations with supervisor Reflexive reviewing
Defining and naming themes	Refining themes Selecting final themes (Refer to Table 3)	Consultations with supervisor Reflexive reviewing
Producing the report	Renaming themes to provide a coherent narrative	

^aBetween-subject theming was only conducted upon completion of within-subject themes

Table 3 Categorisation of between-subject themes

Theme	Subtheme	Within-Subject Themes
School Counsellors Recognised the Essentiality of IPC	Acknowledging Limitations	Complementary nature of IPC (Expertise, Limitations, Resources, Perspectives, Boundary of school), Humility
	Unique Contributions to Team Efforts	Role of school counsellor (Managing internal stakeholders, Bridge to external, Logistical, Administrative, Accessibility, Communication with students, Triaging, Case discussions)
Evolving Relationships	Valuing Collaboration	Valuing IPC (Parents feeling supported, Perceived effectiveness, Inter-related nature of clients' issues, Synergy, Importance of holistic support), Emotional support
	Reciprocity	Building rapport (Reciprocity, Tone, Empathy), Mutual respect
	Alignment in Goals	Alignment (Goals, Values, Schedules, Assessments, Interventions), Building rapport (Managing expectations)
Adapting to Multifaceted and Dynamic Situations	Communication	Communication (Timeliness, Openness, Initiating, Absence, Accuracy, Frequency, Mode)
	Prioritisation of Time	Heavy workload, Prioritisation (Plan execution, Lack of resources)
	Factoring Multiple Stakeholders into Decisions	Caregivers' Willingness to Collaborate (Consent, More important with younger clients, Knowledge of resources), Influence of internal stakeholders (Pressure, Teachers, School leaders' preferences)
	Situation-Dependent Roles	Situation-dependent roles (Client issues, Family situations, Dynamic, Dependent on agency/professionals involved, Case manager, Caregivers' responsiveness, Client demographics, Client preferences), Role Clarity (Delineating, Role boundaries, Intimate knowledge of roles, New system, Difficult to delineate completely)
Responding to Service Gaps Resulting from Disparate Approaches		Improper handovers (Failure to update, High turnover), Follow-up support (Acceptance of referrals, Referral support, Policies), Systemic issues (Management, Inflexible processes, Protocols, Streamlining processes, Leadership), Conflict resolution, Managing service gaps (Creative problem-solving, Maximizing available resources), Flexibility (Roles, Resources, Boundaries)

Data in *Within-Subject Themes* had been codified within each interview

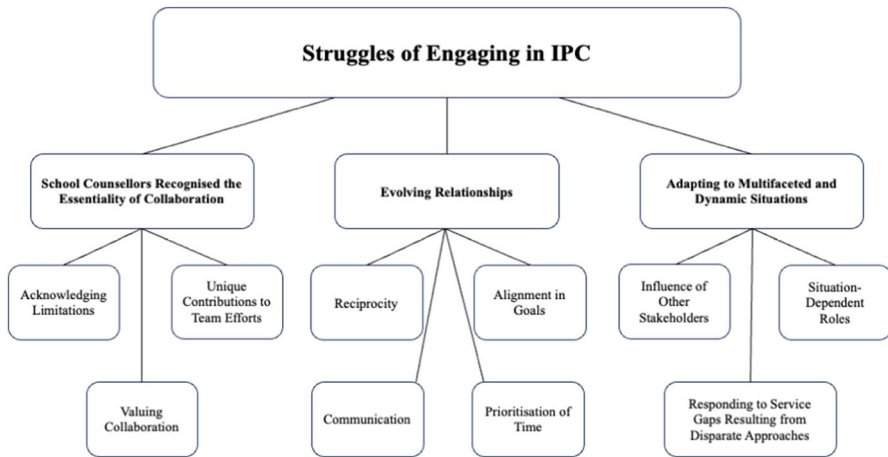


Fig. 1 Overview of themes

School Counsellors Recognised the Essentiality of Collaboration

This theme underscores the importance of collaborative efforts in providing holistic support for students and their families. Through the subthemes of “Acknowledging Limitations”, “Unique Contributions to Team Efforts”, and “Valuing Collaboration”, participants are compelled to seek external resources to supplement their efforts, emphasising the value of collaboration.

Acknowledging Limitations

Participants reported feeling limited in addressing issues, both in terms of resources and expertise, as illustrated by the excerpt below. These restrictions seem to be inherent to the role, compelling school counsellors to seek external resources to provide comprehensive support.

Because sometimes in school we can only observe the child, based on what we see in school, but when there’s a cause for concern, usually is a bigger picture la. ... just based on school alone we can’t la. So, we need the external agencies to come in to work with the family ... Because they have in-house psychologists to work with the child on more specific issues like ADHD. (P4) [‘la’ – this is a discourse particle in colloquial speech that has little meaning but provides emotional emphasis in speech.]

Unique Contributions to Team Efforts

Self-confidence could be sensed from all participants, attributing to unique advantages inherent to their role. School counsellors leveraged their accessibility

to clients and school resources to enhance team interventions. By triaging and processing timely information, a holistic perspective can be provided to external professionals.

Because being in a school setting, we see the kids more often. We get more face-time touch points with them. ... in terms of working with agencies themselves, we also provide them information. I think a more holistic perspective of the child. ... also based on inputs from teachers, and CCA (Co-Curricular Activities) and all of that. (P9)

Valuing Collaboration

All participants expressed a core belief in the essentiality of collaborating with external professionals. They valued the benefits of holistic support for clients. The following excerpts demonstrated this very well. Some school counselors even appreciated the emotional support from external professionals, as one shares, “So this is more like I’m not so alone la”. (P10).

I think it is definitely important and necessary la. Cause I feel that no one agency can really deliver such comprehensive support to a child or family? ... I feel like the overall outcome is better because there are more parties looking at different parts. (P9)

Those (parents) that are open, they are willing to give it (working with a social worker) a try, most of the time I’d say they benefit from it la. They’ll see some kind of extra support. (P1)

Evolving Relationships

All participants placed an emphasis on building strong rapport with external professionals to facilitate IPC. “Reciprocity”, “Alignment in Goals”, “Communication”, and “Prioritisation of Time” were identified as crucial elements influencing the dynamics of these relationships.

Reciprocity

The cyclical “give-and-take” relationship between professionals involved a mutual exchange of expertise and resources. Mutual respect appeared to be a key element, whereby both professionals recognise and value the skills, knowledge, and efforts of the other, fostering an eagerness to help. One such relationship is described in the following excerpt.

Cause our school seeks to work closely with our FSC (Family Service Centre) and all as our partners. ... from there when we talk about even students that are not in our radar, that our community partners are out there to share with us to look out for some students and there is incidents that happen in the community, they will share with us. ... If they wanna know some students, then they

can check-in with us, like we are their eyes and ears in school, but they are our eyes and ears in the community la. (P5)

Alignment in Goals

The degree of alignment in goals appears to shape the strength of relationships, encouraging trust in collaborating with particular professionals. One interviewee describes how alignment facilitates the crossing of traditional role boundaries.

When your goals are aligned, I guess we are all working towards the same thing ... there are gonna be those as well that appreciate what you do, and they will go the extra mile to collaborate. (P2)

Participants highlighted the importance of values like empathy, client-centeredness, and confidentiality, in judging the degree of alignment. Another interviewee provides an example of assessing empathy through interactions.

I think is the language that they use. ... I think that also [shows] when they really care about the student and not just care about getting their job done. (P10)

Conversely, the coherence and effectiveness of interventions may be affected if stakeholders take separate approaches. Misalignment may arise from differences in values, assessments, or understanding of roles. Rather representatively, P7 described instances where misalignment occurred, “There might also be some kind of like a comparison inevitably of how come this other person could do it and you couldn’t”. Additionally, P3 discussed how differing assessments can result in independent approaches.

I think in their (social workers) own caseload, in their own SOPs, that case may not be very high on their list. So the person may not follow up as quickly or as regularly. Maybe they have more other priority cases la that requires more of their attention. (P3)

Communication

Communication seems to serve as the conduit through which relationships are developed. Key characteristics included those commonly reported in other IPC studies, namely timeliness, frequency, availability, accuracy, and openness (Wei et al., 2022; Nooteboom et al., 2021). Timeliness was most commonly cited in maintaining the coherence of interventions to reduce harm to clients, as exemplified in the following excerpt.

If I have a student that is seeing a psychologist from the hospital and then we don’t connect with each other, then actually sometimes maybe we could be

doing work that the other person is also doing. ... Or I ask the same question to get the youth to share about his or her past, that can be quite traumatising. Then we are asking the youth to relive their bad experience. (P8)

A unique aspect, initiating communications, was mentioned by half of the participants. Repeatedly chasing for updates can sour the relationship, as the following excerpt shows.

If I have to keep going to the external professionals and vice versa la of course, in which they have to keep coming to me, then it's a bit like, "If I don't ask you, then you won't tell me, then I won't know anything! Then how to help the student?" (P6)

Prioritisation of Time

Despite the benefits of building relationships, six participants struggled with the temporal demands of collaborative behaviours. School counsellors had to constantly evaluate the productivity of their efforts based on perceived impact, reprioritising their time amidst other competing responsibilities. The excerpts below elaborate on how IPC can be perceived as less important compared to direct counselling.

I put all these experiences (IPC) as more case management role. That means in the sense of I'm not doing counselling, counselling support for the child. It is really being back end to try to sort all these things out so that a more holistic support can be provided for the child. I have to say sometimes it does take up quite a bit of time and then I'll be like, okay, as much as this is not counselling, but this is what is important for the child also. ... I shouldn't see it as like it's taking away from my so-called my main job. (P3)

Because the caseload is rather high, sometimes we just put all [into] the plan (after a case discussion) and just say, "ok will do it". (laughs) Like it's hard to follow-up whether it's actually being done or not. ... Then how are you going to see your once-a-week students, who also need your counselling sessions? (P6)

Adapting to Multifaceted and Dynamic Situations

This theme emphasises the complexity of adapting to diverse practises and navigating dynamic circumstances. Participants described the challenges of "Factoring Multiple Stakeholders into Decisions", "*Situation-Dependent Roles*", and "Responding to Service Gaps Resulting from Disparate Approaches". These situations demonstrate the flexibility and creativity required to address the evolving needs of clients and mitigate potential gaps.

Factoring Other Stakeholders into Decisions

This subtheme emphasised the importance of working with others in the students' microsystem (Bronfenbrenner, 1979) like caregivers and internal stakeholders. These influences were inadvertently mentioned by all participants, despite the focus on external collaboration. The stakeholders' collaborative attitudes potentially limited the support provided if not managed adequately. The excerpt below provides an example of such a negative influence.

But some parents or caregivers will just either, one, they're not very comfortable with the social worker, or they may feel like it's a waste of time. I also do have parents or caregivers who just kind of push the responsibility away to all these Family Service Centres and to schools la. (P1)

When managed well, IPC can be facilitated. Whilst sharing on the clarity of roles, P4 provides the following example:

Or sometimes because if a case is high tier, then school leaders will definitely want to be in the know. So that's when school leaders will also be in the group chat. So that helps to keep everyone in the loop la. And everyone is more clear ... (P4)

Situation-Dependent Roles

This subtheme provides insight into the wide variety of roles school counsellors undertake. Some characteristics that school counsellors consider include client profiles, agencies involved in the case, and the type of issues being targeted, exemplified by the excerpt below.

It really depends on who the person or agency is. If I'm going down (home visit) with a FSC social worker, usually they are more focused on the parents. Then we're working together, but we're not really supporting the same people. ... if it was another social worker in another external agency, for instance, [agencies removed], the kind that is also working with the child for maybe other issues, maybe cyber-related issues, or other things, then yes, we are both working with the same client. But maybe, we're targeting slightly different things. ... Usually before the home visit, we have already discussed what we were going to cover or ask. (P7)

To achieve the role clarity P7 describes, delineating roles appears to be a crucial process, discussing to gain a clear understanding of their individual goals and tasks.

Responding to Service Gaps from Disparate Approaches

Without clear and comprehensive structures for processes and practises, disparate approaches tended to leave gaps in services. Issues relating to inconsistent handover

practises by outgoing professionals were most commonly mentioned by participants. The following excerpt is provided in the context of communication gaps.

Sometimes this particular social worker in the same agency [is] more on-task, more responsive, have more rapport with the family is easier. Versus the other one, maybe new, like the case just got handed over. And it's like all along I have a social worker, but the personnel keeps changing. Yeah, so that person could be new also and they never contact. Or when I contact, realise oh change already ah? (P3) ['ah' is another discourse particle in colloquial speech.]

These service gaps result in inefficient processes, frustrating stakeholders, and in worst cases, leave clients without critical support. These issues often fell beyond participants' expertise and role boundaries, requiring creative strategies to tackle challenges and ensure comprehensive support for clients. P10 describes how they addressed safety issues with increased monitoring below.

Then we got to tighten up the measures in school. So we'll get teachers to check-in a bit more, contact parents a bit more, and then teach the student to call the police if something were to happen, that cause them to feel danger and unsafe. Yeah to focus on the safety and also to increase like teachers to help, like teacher mentor. (P10)

Overarching Theme: Struggles of Engaging in IPC

The overarching struggle revolved around the feasibility of collaborative efforts. Even though all participants believed IPC to be crucial in helping clients, they encountered challenges in maintaining effective collaboration. Feasibility issues comprised of physical limitations, temporal demands, and complexities associated with the three main themes. Participants continuously evaluated the extent of collaborative efforts by weighing the "push" and "pull" factors depicted in Fig. 2. If the "pull" factors outweighed the perceived essentiality of collaboration, school counsellors may adopt separate approaches, thus undermining the coherence of interventions.

This struggle is exemplified by the excerpts taken from P6's interview in the context of follow-up actions after case discussions with external stakeholders.

I feel like I'm also quite limited, so like for example, if I've like 5 cases with 5 psychologists. And they want to come see the student like once a week. Then like my every single day of the week's already filled with psychologists, ... it's the logistics also la. Because I know, it seems like the child spends most of the time in school and external professionals will use the school to have the session with the child, but there's only so much of the school, and so much of the liaison person that can support right? ... I mean if the psychologist take more sessions, then maybe my work also reduced right, cause I'm going to have less sessions with the student. If that's the case. But psychologists, they don't have the time to like have extra sessions with the kids what. (P6)

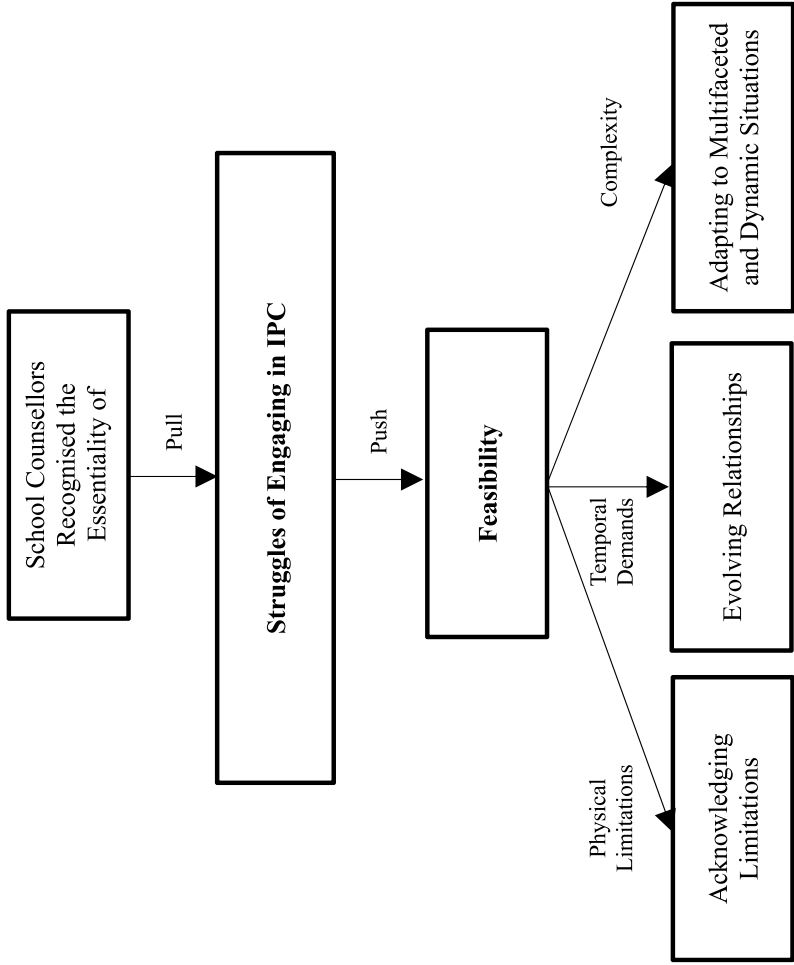


Fig. 2 Diagram of relationships in "Struggles of Engaging in IPC"

The struggle in balancing the essentiality of collaboration with physical and temporal demands can be observed in the preceding excerpt. Although the interventions can help to lighten her workload on the clinical front, it burdens the administrative, coordination, and logistical side of operations.

Discussion

Investigating IPC from the perspective of school counsellors provided valuable insights into collaborative processes and the factors influencing these processes. The research questions were extensively explored in the preceding section with the main themes of *School Counsellors Recognised the Essentiality of Collaboration*, *Evolving Relationships*, and *Adapting to Multifaceted and Dynamic Situations* illuminating on the nature of collaborative processes. The corresponding subthemes formed facets of the overarching domains, relating to the factors that influenced the strength of collaborative relationships. The main themes collectively contribute to the overarching struggle that school counsellors continually undergo in deciding on the extent of a collaborative effort with a particular professional.

By integrating the perspectives of school counsellors, this study contributes to existing literature by enhancing our understanding of IPC within Singapore's school counselling, social care, and mental health spaces. While many themes and subthemes align with previous research findings, some nuances and differences emerge, warranting further exploration and explanation.

School Counsellors Recognised the Essentiality of Collaboration

Participants generally expressed a strong desire in collaborating with external professionals and current research supports the reverse trend. School counsellors primarily adopt a student-only focus, formally or informally required of their role (Chong et al., 2013). However, as P2 shared in *Situation-Dependent Roles*, the nature of working on mental health issues required interventions across different contexts, concurring with the literature that mental health issues are often intricately related to other domains, like family dynamics (Brooks et al., 2013; Lim & Wong, 2018; Morgan et al., 2019; Tausendfreund et al., 2016). School counsellors hence recognised the essentiality of working with external professionals who can fill these inherent gaps. Conversely, multiple stakeholders in Singapore have also expressed a similar appreciation for the involvement of school counsellors (Kok & Low, 2017; Lim & Wong, 2018; Low, 2014, 2015a, 2015b), thus motivating collaboration.

A unique finding of this study identified *Unique Contributions to Team Efforts* as a factor contributing to a desire to collaborate. This finding resonates with Bandura's (1977) self-efficacy theory, which refers to an individual's intrinsic belief in their capability to perform tasks, influence events, and achieve goals. This suggests that the recognition of contributions enhances the professional's motivation to engage in collaborative endeavours. Moreover, *Valuing Collaboration* relates to the concept of collective efficacy, wherein "a group's shared belief in its conjoint capabilities

to organize and execute the courses of action required to produce given levels of attainments” (Bandura, 1997, p. 477). This has been frequently measured in studies conducted in teaching collaborative teams, providing some validity to its value (Anderson et al., 2023; Tschannen-Moran & Barr, 2004). Multilevel analyses have also found that collective efficacy contributes uniquely to student outcomes, after controlling for self-efficacy (Goddard & Goddard, 2001). Although the mechanisms and directions of influences are unclear, these highlight the potential role of self and collective efficacy in motivating collaboration between professionals.

Evolving Relationships

This theme underscores the significance of interpersonal dynamics in collaboration, echoing sentiments in both local and international studies (Low, 2019; Mellin & Weist, 2011; Sadana & Kumar, 2021). Notably, Gittel (2000) identified relationships and communication as the key factors enabling effective collaboration in her theory of Relational Coordination (RC), suggesting that the strength of relationships strongly influences the effectiveness of collaborative processes. This study extends these findings, highlighting the factors influencing the ebb and flow of these professional relationships in the Singapore context.

On a larger scale, it seems that the IPC culture has also evolved with time when comparing the current findings with local studies. Previous studies had highlighted differences in goals held by school counsellors built up by environmental influences (Lim & Wong, 2018; Low, 2014). External professionals interviewed in these studies had observed that school counsellors prioritised less urgent academic issues, negatively impacting the collaborative relationship. Instead, this study revealed a convergence in values such as client-centeredness and empathy. Over the years, it seems that school counsellors have become increasingly aligned in values and goals with external professionals.

Another difference is that of openness in information sharing. Whilst past studies in Singapore had reported insufficient information being shared with youth workers (Lim & Wong, 2018) or over-sharing with school staff (Low, 2015b), these issues did not emerge strongly in this study. Instead, school counsellors were more concerned with the timeliness and initiation of communications. Although one explanation could be that issues surrounding confidentiality are one-sided, an alternative explanation could be in relation to the increased salience of other communication issues. The urgency of responding to clients’ needs became more salient when the accessibility advantage of frequently being in contact with students and their families is considered. Thus, school counsellors became more mindful of these issues compared to confidentiality issues, which have also been declining in relevance (Low & van der Laan, 2023). The increasing alignment in goals and evolution of communication issues provides evidence for the development of more integrated working relationships between stakeholders as predicted by Low (2015b).

The above trends also suggest the possibility of IPC relationships and barriers continuing to transform, highlighting the importance of building a common

understanding amongst all professionals (Low, 2015b). RC theory proposes that, in addition to an alignment in goals, shared knowledge is another critical component that influences the strength of professional relationships (Gittell, 2000). In the case of IPC in Singapore, shared knowledge includes case information as well as an in-depth understanding of roles to avoid misunderstandings as shared by P7 in *Alignment in Goals*, which arose from disparate practises amongst school counsellors. To further support the development of professional relationships, RC theory also highlighted the importance of organisational structures to facilitate communication and interpersonal interactions (see Bolton et al., 2021). An example is “relational job design”, whereby roles are well-defined whilst maintaining flexible boundaries to encourage cross-boundary support that is prevalent in IPC in Singapore (Gittell, 2016; Yeo & Lee, 2014). Regardless of interventions, it is likely that the IPC landscape will continue to transform in the future.

Despite the possible benefits, this study also highlights the temporal costs of investing in relationships. Fostering and maintaining relationships are time-consuming, requiring effort to reap the potential benefits (Glaeser et al., 2002; Gouldner, 1960). Considering the wide variety of external professionals that school counsellors have to work with, the time required to maintain all ties will be substantial (Low, 2019; Yeo & Lee, 2014). In addition, school counsellors have already been reported to be struggling with their other responsibilities (Chong et al., 2013; Kok, 2013). Nonetheless, the long-term gains through strong relationships with external professionals, as P5 had described in *Reciprocity*, include many intangible and indirect advantages like having “eyes and ears in the community” to provide timely information. These benefits also transfer across cases, when school counsellors work with the same professional. Thus, school counsellors can be mindful of the strategic value of nurturing strong relationships.

Adapting to Multifaceted and Dynamic Situations

This theme illuminates on the proactive role that school counsellors undertake in navigating the diverse and dynamic scenarios they face. This showcases their requisite creativity, flexibility, and adaptability in confronting unfamiliar circumstances. Hsi and Boman (2023) had also previously noted cognitive and behavioural flexibility, referring to the ability to switch between different concepts in response to environmental stimuli (Scott, 1962), to be important in the development of the professional identity of tertiary school counsellors. These soft skills were important in responding to the expectations of other stakeholders and improving the perception of others towards themselves (Hsi & Boman, 2023). This study provides support for cognitive and behavioural flexibility to be critical in collaborative work for mainstream primary and secondary school counsellors as well.

Further complicating the multifaceted role of school counsellors is the presence of other stakeholders like parents and school leaders that can strongly influence IPC effectiveness. School counsellors have to be mindful of these potential factors and effectively manage the expectations of these stakeholders for effective IPC to occur (e.g. P4 in *Influence of Other Stakeholders*). To navigate the challenges in working

with caregivers, Low (2015b) has advocated for family therapy to be conducted by school counsellors, a common view amongst external counsellors (Low & van der Laan, 2023; Low, 2015b). Providing cultural insight into the difficulties in working with school leaders, Harrison and Low (2024) used the concept of power distance in present in the hierarchical work culture of schools that limit the decision-making freedom of school counsellors, proving detrimental to the effectiveness of interventions (Prasath et al., 2021; Yeo & Lee, 2014). Thus, current research further illustrates the intricate challenges that school counsellors face.

This theme also reveals the unofficial role of school counsellors in acting as “chameleons”, adjusting their roles to maintain the coherence of interventions. Little recognition has been given to the work of Singaporean school counsellors for many years, contributing to a weak professional identity (Harrison, 2022; Hsi & Boman, 2023; Low, 2019; Yeo & Lee, 2014). The perspectives of participants in this study detail the valuable contributions of school counsellors, further emphasising the importance of integrating school counsellors into collaborative team efforts. The common occurrence of boundary crossings past traditional role boundaries also highlights the need to better equip school counsellors with the skills and knowledge to effectively address the pressing needs of students and their families (Hsi & Boman, 2023; Kok, 2013; Low, 2009). Acknowledging and improving the proficiency of school counsellors can garner appreciation for their efforts, fostering a stronger desire to collaborate and further develop the professional identity of school counsellors (Harrison & Low, 2024; Hsi & Boman, 2023).

Recommendations for Practise and Policy

To enhance collaborative efforts from school counsellors, interventions should prioritise the alleviation of existing barriers to capitalise on intrinsic motivators, as illustrated in Fig. 2. The findings of this study can inform changes in the various layers affecting IPC work, namely the systemic, training, and individual levels.

While policy and structural changes to reduce barriers provide a straightforward solution, they should be implemented carefully to avoid over-regulation and resistance to adoption which can hinder the desired outcomes. A possible systemic change might involve adopting an ecological model where roles are clearly distinguished from each other, with the role of school counsellors rising in influence (Fears et al., 2023; Harrison & Low, 2024). Such clarity potentially reduces role complexity and the workload of school counsellors. However, implementing new guidelines often faces various challenges spanning organisational to individual levels (see Fischer et al., 2016). This complicates the process, resulting in a slow uptake of changes. Inconsistent adoption of practises can further complicate collaborative work, increasing the difficulty to adapt to these changes. Another issue is that excessively structured guidelines can backfire, decreasing voluntary collaboration when professionals feel over-controlled (Nooteboom et al., 2021; Time, 2021). Persistent inefficiencies and disparate processes have remained a challenge over the years, despite much room for improvements (Kok, 2013; Low, 2009).

Refining existing training programmes emerges as a pragmatic approach, equipping trainees with the requisite skills and knowledge to navigate complex scenarios effectively. Synthesising the findings of this study with previous research can inform counsellor educators of the challenges encountered by school counsellors in the field. A potential addition can include formalised training on community resources to enhance understanding of role boundaries amongst professionals, establishing realistic expectations for collaborative goals (Low & van der Laan, 2023). A nuanced understanding of roles can also equip school counsellors with the knowledge to adapt to unexpected and unfamiliar service gaps faced. In addition to structured training, experienced practitioners can facilitate knowledge-sharing sessions, offering insights into creative problem-solving strategies for managing common service gaps. With comprehensive training programmes, future school counsellors are likely to become more proficient and efficient in their roles, lowering the barriers to collaboration depicted in Fig. 2.

To effect meaningful change from within, practitioners must remain aware of hindrances to collaboration. The importance of maintaining professional relationships with stakeholders while effectively navigating job demands is a delicate balance that often goes unrecognised until later in one's career. Even when aware, practitioners may consider rapport building as "back-end" work, secondary to other core responsibilities (P3 in *Prioritisation of Time*). This study suggests reframing personal attitudes to view relationship-building as essential to their work, thus facilitating effective collaboration. By being cognisant of the potential benefits of relationships, practitioners may also actively seek more efficient strategies that mitigate the impact on their direct work with students (Spaulding et al., 2021).

Limitations and Future Research

Some limitations had been mentioned in the "[Methods](#)" section, namely the use of a single coder being prone to potential biases. In addition, as commonly associated with qualitative research utilising a small and purposive sample, the generalisability of findings is limited. The spread of years in service, former roles in and outside schools as well as other personal factors were not evenly distributed in this sample. Nevertheless, the findings present a coherent voice for school counsellors with substantial years of service in mainstream schools.

Future studies can build upon these current findings, working towards generalisability to school counsellors and even external professionals in IPC. The current findings add to the limited body of local research in IPC, although more studies will be needed to provide a comprehensive understanding of processes. Although saturation of themes was observed, further interviews may yield more in-depth and contextualised findings, especially with other samples of school counsellors to validate the generalisability of the findings. To this end, questionnaires could also be developed (e.g. Mellin et al., 2014), applying factor analysis techniques to determine significant influences on IPC.

Conclusion

This study delved into the perspectives of school counsellors, illuminating on their IPC experiences. Their intrinsic motivation to collaborate is hindered by feasibility issues in terms of physical resources, temporal demands, and complex challenges. To facilitate collaboration, interventions should focus on alleviating barriers. The findings of this study largely support past local research although some differences have also been identified, particularly in the evolvement of IPC relationships. By addressing existing gaps and building upon the insights gleaned from this study, future research endeavours can contribute to the refinement of mental health interventions, ultimately benefiting youths and their families in Singapore.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s10447-025-09595-2>.

Author Contribution Conceptualizing the research, research design and ethics approval, manuscript write-up, and review of manuscript—both authors; field work—first author; analysis—first author supported by second author.

Funding Open Access funding enabled and organized by CAUL and its Member Institutions.

Data Availability Anonymized data that support the findings of this study may be available from the corresponding author upon reasonable request.

Declarations

Competing interests The authors declare no competing interests.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

References

- Anderson, C. M., Summers, K. H., Kopatich, R. D., & Dwyer, W. B. (2023). Collective teacher efficacy and its enabling conditions: A proposed framework for influencing collective efficacy in schools. *AERA Open*, 9, 23328584231175060. <https://doi.org/10.1177/23328584231175060>
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191–215.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. Freeman.
- Bates, S. M., Mellin, E., Paluta, L. M., Anderson-Butcher, D., Vogeler, M., & Sterling, K. (2019). Examining the influence of interprofessional team collaboration on student-level outcomes through school–community partnerships. *Children & Schools*, 41(2), 111–122. <https://doi.org/10.1093/cs/cdz001>

- Bolton, R., Logan, C., & Gittell, J. H. (2021). Revisiting relational coordination: A systematic review. *The Journal of Applied Behavioral Science*, 57(3), 290–322. <https://doi.org/10.1177/0021886321991597>
- Braun, V. and Clarke, V. (2021) *Thematic Analysis: A practical guide*. Sage.
- Bronfenbrenner, U. (1979). *The ecology of human development*. Harvard University Press.
- Brooks, F., Bloomfield, L., Offredy, M., & Shaughnessy, P. (2013). Evaluation of services for children with complex needs: Mapping service provision in one NHS Trust. *Primary Health Care Research & Development*, 14(1), 52–62. <https://doi.org/10.1017/S1463423612000217>
- Choi, B. C. K., & Pak, A. W. P. (2006). Multidisciplinarity, interdisciplinarity and transdisciplinarity in health research, services, education and policy: 1. Definitions, objectives, and evidence of effectiveness. *Clinical and Investigative Medicine*, 29(6), 351–364.
- Chong, W. H., Lee, B. O., Tan, S. Y., Wong, S. S., & Yeo, L. S. (2013). School psychology and school-based child and family interventions in Singapore. *School Psychology International*, 34(2), 177–189. <https://doi.org/10.1177/0143034312453397>
- Creswell, J. W., & Miller, D. L. (2000). Determining validity in qualitative inquiry. *Theory into Practice*, 39 (3), 124–130. https://doi.org/10.1207/s15430421tip3903_2
- Fears, A., Henry, S., & Grimes, T. (2023). A rural ecological school counseling framework. *Professional School Counseling*, 27(1), 1–11. <https://doi.org/10.1177/2156759X2312024>
- Fischer, F., Lange, K., Klose, K., Greiner, W., & Kraemer, A. (2016). Barriers and strategies in guideline implementation—A scoping review. *Healthcare (Basel)*, 4(3), 36. <https://doi.org/10.3390/healthcare4030036>
- Gittell, J. H. (2000). Organizing work to support relational co-ordination. *International Journal of Human Resource Management*, 11(3), 517–539. <https://doi.org/10.1080/095851900339747>
- Gittell, J. H. (2016). *Transforming relationships for high performance: The power of relational coordination*. Stanford University Press.
- Glaeser, E. L., Laibson, D., & Sacerdote, B. (2002). An economic approach to social capital. *The Economic Journal*, 112(483), F437–F458.
- Goddard, R. D., & Goddard, Y. L. (2001). A multilevel analysis of the relationship between teacher and collective efficacy in urban schools. *Teaching and Teacher Education*, 17(7), 807–818. [https://doi.org/10.1016/S0742-051X\(01\)00032-4](https://doi.org/10.1016/S0742-051X(01)00032-4)
- Goh, Y. H. (2024, Feb 15). Mental health a national priority, says DPM Wong: 28,000 more to be trained to help in community. *The Straits Times*. <https://www.straitstimes.com/singapore/politics/mental-health-a-national-priority-says-dpmwong-28000-more-to-be-trained-to-help-in-community>
- Gouldner, A. W. (1960). The norm of reciprocity: A preliminary statement. *American Sociological Review*, 25(2), 161–178. <https://doi.org/10.2307/2092623>
- Harrison, M. G., & Low, P. K. (2024). Developing the professional identity of school counsellors in the Asia Pacific: Challenges and ways forward. *Counselling and Psychotherapy Research*, 1–8. <https://doi.org/10.1002/capr.12816>
- Harrison, M. G. (2022). The professional identity of school counsellors in East and Southeast Asia. *Counselling and Psychotherapy Research*, 22(3), 543–547. <https://doi.org/10.1002/capr.12546>
- Heatly, M. C., Nichols-Hadeed, C., Stiles, A. A., & Alpert-Gillis, L. (2023). Implementation of a school mental health learning collaborative model to support cross-sector collaboration. *School Mental Health*, 15(2), 384–401. <https://doi.org/10.1007/s12310-023-09578-x>
- Hsi, T., & Boman, P. (2023). The development of professional identity among counsellors in tertiary educational institutions in Singapore. *Counselling & Psychotherapy Review Singapore*, 1(1), 19–27. <https://doi.org/10.1142/S2810968623500031>
- Kok, J. K. (2013). The role of the school counsellor in the Singapore secondary school system. *British Journal of Guidance & Counselling*, 41(5), 530–543. <https://doi.org/10.1080/03069885.2013.773286>
- Kok, J. K., & Low, S. K. (2017). Proposing a collaborative approach for school counseling. *International Journal of School & Educational Psychology*, 5(4), 281–289. <https://doi.org/10.1080/21683603.2016.1234986>

- Körner, M., Bütof, S., Müller, C., Zimmermann, L., Becker, S., & Bengel, J. (2016). Interprofessional teamwork and team interventions in chronic care: A systematic review. *Journal of Interprofessional Care*, 30(1), 15–28. <https://doi.org/10.3109/13561820.2015.1051616>
- Larkin, M., Shaw, R., & Flowers, P. (2019). Multiperspectival designs and processes in interpretative phenomenological analysis research. *Qualitative Research in Psychology*, 16(2), 182–198. <https://doi.org/10.1080/14780887.2018.1540655>
- Leclerc, B.-S., Blanchard, L., Cantinotti, M., Couturier, Y., Gervais, D., Lessard, S., & Mongeau, S. (2014). The effectiveness of interdisciplinary teams in end-of-life palliative care: A systematic review of comparative studies. *Journal of Palliative Care*, 30(1), 44–54. <https://doi.org/10.1177/082585971403000107>
- Lim, X. H. C., & Wong, P. Y. J. (2018). Interprofessional collaboration between social workers and school counsellors in tackling youth at-risk behaviour. *Asia Pacific Journal of Social Work and Development*, 28(4), 264–278. <https://doi.org/10.1080/02185385.2018.1506357>
- Low, P. K. (2009). Considering the challenges of counselling practice in schools. *International Journal for the Advancement of Counselling*, 31(2), 71–79. <https://doi.org/10.1007/s10447-009-9069-1>
- Low, P. K. (2014). Looking in from the outside: Community counsellors' opinions and attitudes to school counselling in Singapore. *Pastoral Care in Education*, 32(4), 295–305. <https://doi.org/10.1080/02643944.2014.974663>
- Low, P. K. (2015a). School counselling in Singapore: Teachers' thoughts and perceptions. *Asia Pacific Journal of Counselling and Psychotherapy*, 6(1–2), 17–27. <https://doi.org/10.1080/21507686.2014.1002801>
- Low, P. K. (2015b). Stakeholders' perceptions of school counselling in Singapore. *Journal of Psychologists and Counsellors in Schools*, 25(2), 200–216. <https://doi.org/10.1017/jgc.2014.21>
- Low, E. L., Goodwin, A. L., & Snyder, J. (2017). Focused on learning: Student and teacher time in a Singapore school. *Stanford Center for Opportunity Policy in Education*. https://edpolicy.stanford.edu/sites/default/files/scope-singaporestudent-and-teacher-time-report-final_0.pdf
- Low, P. K. (2019). *Interdisciplinary professional partnerships*. Oxford University Press.
- Low, P. K., & van der Laan, L. (2023). Community-school collaborations: Community counsellors' perceptions of school counselling in Singapore. *Asia Pacific Journal of Counselling and Psychotherapy*, 14(1), 70–82. <https://doi.org/10.1080/21507686.2023.2193755>
- Mellin, E. A., Taylor, L., & Weist, M. D. (2014). The expanded school mental health collaboration instrument [school version]: Development and initial psychometrics. *School Mental Health*, 6(3), 151–162. <https://doi.org/10.1007/s12310-013-9112-6>
- Mellin, E. A., & Weist, M. D. (2011). Exploring school mental health collaboration in an urban community: A social capital perspective. *School Mental Health*, 3(2), 81–92. <https://doi.org/10.1007/s12310-011-9049-6>
- Morgan, S., Pullon, S., Garrett, S., & McKinlay, E. (2019). Interagency collaborative care for young people with complex needs: Front-line staff perspectives. *Health & Social Care in the Community*, 27(4), 1019–1030. <https://doi.org/10.1111/hsc.12719>
- Nooteboom, L. A., Mulder, E. A., Kuiper, C. H. Z., Colins, O., & Vermeiren, R. R. J. M. (2021). *Towards integrated youth care : A systematic review of facilitators and barriers for professionals*. <https://doi.org/10.1007/s10488-020-01049-8>
- Penrod, J., Preston, D., Cain, R., & Starks, M. (2003). A discussion of chain referral as a method of sampling hard-to-reach populations. *Journal of Transcultural Nursing*, 14, 100–107. <https://doi.org/10.1177/1043659602250614>
- Potter, J., & Hepburn, A. (2005). Qualitative interviews in psychology: Problems and possibilities. *Qualitative Research in Psychology*, 2(4), 281–307. <https://doi.org/10.1191/1478088705qp045oa>
- Prasath, P. R., Lindinger-Sternart, S., & Duffey, T. L. (2021). Counselors as organizational leaders: Exploring parallels of servant leadership and professional counseling. *Journal of Counselor Leadership and Advocacy*, 8(2), 146–156. <https://doi.org/10.1080/2326716X.2021.1904460>
- Sadana, A., & Kumar, A. (2021). Exploring novice Indian school counsellors' experiences collaborating with teachers and administrators. *Journal of psychologists and counsellors in schools*, 1–15. <https://doi.org/10.1017/jgc.2021.13>
- Scott, W. A. (1962). Cognitive complexity and cognitive flexibility. *Sociometry*, 25(4), 405–414. <https://doi.org/10.2307/2785779>
- Spaulding, E. M., Marvel, F. A., Jacob, E., Rahman, A., Hansen, B. R., Hanyok, L. A., Martin, S. S., & Han, H.-R. (2021). Interprofessional education and collaboration among healthcare students and

- professionals: A systematic review and call for action. *Journal of Interprofessional Care*, 35(4), 612–621. <https://doi.org/10.1080/13561820.2019.1697214>
- Tausendfreund, T., Knot-Dickscheit, J., Schulze, G. C., Knorth, E. J., & Grietens, H. (2016). Families in multi-problem situations: Backgrounds, characteristics, and care services. *Child & Youth Services*, 37(1), 4–22. <https://doi.org/10.1080/0145935X.2015.1052133>
- Time, M. S. (2021). How temporal discretion supports interagency coordination: Sweden's intersectoral fight against antimicrobial resistance. *Comparative European Politics (Houndmills, Basingstoke, England)*, 19(3), 360–379. <https://doi.org/10.1057/s41295-021-00237-6>
- Trivedi, D., Goodman, C., Gage, H., Baron, N., Scheibl, F., Iliffe, S., Manthorpe, J., Bunn, F., & Drennan, V. (2013). The effectiveness of inter-professional working for older people living in the community: A systematic review. *Health & Social Care in the Community*, 21(2), 113–128. <https://doi.org/10.1111/j.1365-2524.2012.01067.x>
- Tschannen-Moran, M., & Barr, M. (2004). Fostering student learning: The relationship of collective teacher efficacy and student achievement. *Leadership and Policy in Schools*, 3(3), 189–209. <https://doi.org/10.1080/15700760490503706>
- Wei, H., Horns, P., Sears, S. F., Huang, K., Smith, C. M., & Wei, T. L. (2022). A systematic meta-review of systematic reviews about interprofessional collaboration: Facilitators, barriers, and outcomes. *Journal of Interprofessional Care*, 36(5), 735–749. <https://doi.org/10.1080/13561820.2021.1973975>
- Weist, M. D., Splett, J. W., Halliday, C. A., Gage, N. A., Seaman, M. A., Perkins, K. A., Perales, K., Miller, E., Collins, D., & DiStefano, C. (2022). A randomized controlled trial on the interconnected systems framework for school mental health and PBIS: Focus on proximal variables and school discipline. *Journal of School Psychology*, 94, 49–65. <https://doi.org/10.1016/j.jsp.2022.08.002>
- Yeo, L. S., & Lee, B. O. (2014). School-based counselling in Singapore. *Journal of Asian Pacific Counselling*, 4(2), 69–79.
- Yeo, L. S., Tan, S. Y., & Neihart, M. F. (2012). Counseling in Singapore. *Journal of Counseling and Development*, 90(2), 243–248. <https://doi.org/10.1111/j.1556-6676.2012.00031.x>

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.