



Exploring the Feasibility of Implementing Telepractice Innovation for Speech-Language Pathologists in Thailand

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Background: The speech clinic at Ramathibodi Hospital has been using telepractice for 2 years. These outcomes have clearly shown many benefits. It is a new system in Thailand that has not been studied in terms of innovation before.

Objective: To explore the possibility of speech-language pathologists (SLPs) in Thailand implementing the telepractice innovation through a survey of their attitudes toward the characteristics, diffusion, and limitations of innovation.

Methods: In this survey study, SLPs responded to a questionnaire. Data regarding SLPs' attitudes toward telepractice innovation were collected and then analyzed using descriptive and inferential statistics.

Results: A total of 86 SLPs responded, who agreed characteristics, diffusion, and both were 54.66%, 45.34%, and 37.21%, respectively, most of them used telepractice. SLPs who used telepractice expressed limitations from patients at 52.24% and SLPs who did not use telepractice expressed limitations from systems at 47.36%.

Conclusions: SLPs in Thailand equally expressed attitudes of agreement and disagreement toward the characteristics and diffusion of telepractice innovation. However, SLPs who used telepractice agreed more than those who did not. SLPs agreed on the characteristic of telepractice innovation, though not all of them agreed to the diffusion of telepractice. The limitations of telepractice innovation depended on SLPs' telepractice experience, occurring from patients for SLPs who used telepractice, but from the system for SLPs who did not. Therefore, telepractice may be an option that can be used according to the needs of the patients and its appropriateness for specific situations.

Keywords: Speech-language pathologist, Telepractice, Innovation, Attitude

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Introduction

An innovation means a new process or new things that are different from the past. This could be an idea, practice or instrument.^{1,2} Sometimes, it could be a new concept developed from an existing one. Innovation has 5 key characteristics. The first characteristic is relative advantage, which refers to the recipient of innovation receiving benefits in all aspects. It also provides convenience and satisfaction. If an innovation is more beneficial, it will be accepted faster. The second characteristic is compatibility, which refers to an innovation that is consistent with the needs and values of the recipient of the innovation. If an innovation does not relate to their needs and values, they will take a longer time to accept it. The third characteristic is complexity, which refers to the difficulty of understanding how to use the innovation and the period of time needed to learn how to use it. If an innovation is easy to understand and use, it will be accepted more quickly. The fourth characteristic is trialability, which refers to the innovation recipient being able to try out the innovation by using it and seeing the outcomes of the innovation. If the innovation recipient spends little time to trial it but quickly sees the benefits, they will accept that innovation faster. The fifth characteristic is observability, which refers to the innovation recipients clearly and easily observing the innovation's benefits. When an innovation has all of these 5 characteristics, the recipients of the innovation will accept it quickly.²

The ability of innovation diffusion is another important factor that makes an innovation widely accepted and implemented. The theories that cover the spreading of innovations in the role of medicine and public health and respond to individual needs and social relationships are the diffusion of innovation (DOI) and the social network theory (SNT).²⁻⁵ The DOI has 4 elements. The first element is innovation, which refers to the creation of an invention

or improvement. The second element is the communication channel, which refers to the channel of innovation diffusion from the innovators to the innovation recipients. The third element is time, which refers to the adoption period of the innovation recipients. The fourth element is the social system, which refers to the spreading of the innovation throughout society. If the society easily accepts change, there will always be an opportunity to accept innovation efficiently. SNT has 3 basic components. The first is sociometric analysis tradition, measured by the degree of the attitudes of the innovators and innovation recipients. If the attitudes of the innovators are in agreement with those of the innovation recipients, they will easily accept the new innovations. The second is the interpersonal relations tradition, measured by the ability of the information connection between the innovators and innovation recipients. If the innovators are a center of the source of information, they will have the power to cause new innovative information to spread to other sources. The third is anthropological tradition, measured by the relationship between the innovators and innovation recipients. If the innovation recipients are close to the innovators, they will quickly receive the information about the innovation.^{2,4-7}

In addition, the innovators are increasingly considering the acceptance of the innovation recipients based on 5 decision-making processes. The first step is knowledge, which means the understanding of and the need for an innovation. The second step is persuasion, which means the holding of positive or negative attitudes toward an innovation. The third step is decision, which means the process of deciding to accept or reject an innovation. The fourth step is implementation, which means the use of some acceptable aspects of this innovation. The last step is confirmation, which means insisting on the use of accepted innovations and finding additional information to support the application of the received innovations. The speech clinic at Ramathibodi Hospital has accepted the innovation



of telemedicine and implemented changes to the onsite speech therapy services to provide telepractice based on these 5 decision-making processes.

The initial start was during 2020, the time of the outbreak of COVID-19, when the speech-language pathologists (SLPs) reviewed and studied the knowledge of telepractice in order to allow the patients to continue speech therapy without increasing the risk of COVID-19 infection from contact between SLPs and patients. There were many meetings with other SLPs in clinics to exchange information and knowledge. Then, SLPs were persuaded to change from providing speech therapy services at the clinic to the use of telepractice instead. Subsequently, SLPs tried telepractice for a month, and afterwards they shared the post-trial information through knowledge management in the practitioner community on the topic “Advantages and limitations of telepractice through speech-language pathology in the COVID-19 pandemic”.⁸ There were several advantages such as decreasing COVID-19 infection, decreasing the cost of services, decreasing travel time, continuation of speech therapy sessions, and having colorful media, but it had limitations such as patients’ ability to access the internet, patients’ devices, needs of patients for tactile cues, and SLPs’ work load to produce media. After the final discussion, SLPs agreed to use telepractice. At the same time, the Faculty of Medicine Ramathibodi Hospital, Mahidol University, supported this telecare system via medical rights and the use of electronic devices. Due to these reasons, SLPs decided in favor of adoption and confirmed the use of telepractice. As a result, they have been using telepractice for 2 years.

The outcomes of telepractice have provided many benefits similar to the last discussion that included reducing the waiting time for the first assessment, increasing speech therapy follow-up, reducing the risk of COVID-19 infection between patients and SLPs, reducing wasted time and travel expenses, reducing patients’ communication disorders, and achieving satisfaction with the telepractice system.⁹⁻¹⁰

In addition, SLPs at other workplaces demonstrated interest in this telepractice system by attending and participating in the training program “Rama Model: Telepractice (RMT)”.¹¹ RMT training program consist of introducing telepractice, online channel to contact patients, preparing media for telepractice, showing video of telepractice, and showing telepractice outcomes in the past. Beyond that, telepractice system was a new system in Thailand that had not been studied in terms of innovation before. Therefore, a model to study the outcomes of RMT was developed. The positive results may increase the opportunity for other SLPs in various workplaces to implement this innovation.

This study aimed to explore the possibility of SLPs in Thailand implementing the telepractice innovation through a survey of their attitudes toward the desired innovation characteristics, innovation diffusion process, and limitations of innovation.

Methods

Study Design and Participants

This survey study investigated the possibility of SLPs in other workplaces in Thailand implementing the telepractice innovation by conducting a survey of their attitudes toward the desired innovation characteristics, innovation diffusion process, and limitations of innovation.

All 204 Thai SLPs¹² received questionnaires about telepractice innovation via Google Forms. SLPs who do not work in Thailand were excluded. The response rate to the questionnaire or the number of participants in this study must not be less than in previous studies, which had 29% and 51 to 63 participants, respectively.¹³⁻¹

Ethics

This study was approved by the Human Research Ethics Committee of the Faculty of Medicine Ramathibodi Hospital, Mahidol University, Thailand (No. MURA 2022/537 on September 23, 2022).



Questionnaire

The questionnaire contained questions about innovation characteristics and the innovation diffusion process that were applied from the previous research.^{3, 17-19} The total number of questions included 23-item that were divided into 3 parts: general information, attitudes toward telepractice, and limitations of telepractice. The general information (9-item) included gender, age, education level, workplace, and type of workplace, as well as types of patients, ages of patients, experience in speech therapy, and experience in telepractice. The attitudes toward telepractice (13-item) were applied from the previous research,^{13, 18, 19} and were divided into 2 parts: innovation characteristics (8-item) and innovation diffusion process (5-item). All of these questions were verified for content validity by 3 expert SLPs. All items had an index of item objective congruence (IOC) of 1. The limitations of telepractice (1-item) were determined. Answering the questionnaire in parts 1 and 3 involved choosing an answer according to the options given or filling in the blanks. The responses to the questionnaire in part 2 used a Likert²⁰ divided into 5 levels: strongly agree, agree, neutral, disagree, and strongly disagree.

Procedures

Researchers sent the uniform resource locator (URL) of the questionnaire's Google Form via online platforms. The period for answering the questionnaire was 1 month.

Statistical Analysis

Data analysis was conducted using SPSS version 18 (PASW Statistics for Windows, Version 18.0. Chicago: SPSS Inc, 2009). The data of the general information, attitudes toward telepractice, and limitations of telepractice were analyzed using descriptive statistics. Data regarding the correlation of SLPs' attitudes among telepractice innovation characteristics, telepractice innovation diffusion process, and limitations of telepractice innovation were analyzed using the chi square test. The level of significance was *P* value less than .05 ($P < .05$).

Results

Characteristics of SLPs and their Patients

A total of 87 participants responded to questionnaires. One of these was excluded in this study because he did not work in Thailand. Thus, the final number of SLPs in this study comprised 86 participants (female, 79 [91.86%]; young adults, 64 [74.42%]; bachelor's degree, 49 [56.98%], 67 (77.91%) SLPs who have used telepractice and 19 (22.09%) SLPs who have not used telepractice. Among participants, 36 (41.86%) SLPs worked in super tertiary care, and 44 (51.16% SLPs had work experience of more than 10 years. Eighty-two (95.35%) SLPs treated patients with delayed language development, and 48 (55.81%) SLPs treated patients of all ages (Table 1).

Table 1. Characteristics of Speech-Language Pathologists and Their Patients

Characteristic	No. (%)		
	Telepractice		
	Total (N = 86)	Not Used (n = 19)	Used (n = 67)
Speech-language pathologists			
Gender			
Female	79 (91.86)	18 (94.74)	61 (91.04)
Male	7 (8.14)	1 (5.26)	6 (8.96)



Table 1. Characteristics of Speech-Language Pathologists and Their Patients (Continued)

Characteristic	No. (%)		
	Telepractice		
	Total (N = 86)	Not Used (n = 19)	Used (n = 67)
Age groups			
Young adult (22 - 40 y)	64 (74.42)	8 (42.10)	56 (83.58)
Adult (41 - 60 y)	13 (15.12)	7 (36.84)	6 (8.96)
Elderly (> 60 y)	9 (10.46)	4 (21.06)	5 (7.46)
Educational level			
Bachelor	49 (56.98)	7 (36.84)	42 (62.69)
Master	30 (34.88)	11 (57.90)	19 (28.35)
Doctorate	7 (8.14)	1 (5.26)	6 (8.96)
Workplaces			
Super tertiary care	36 (41.86)	2 (10.53)	34 (50.74)
Tertiary care	20 (23.26)	8 (42.10)	12 (17.91)
Secondary care	7 (8.14)	2 (10.53)	5 (7.46)
Specialized hospital	3 (3.49)	1 (5.26)	2 (2.99)
Private hospital	8 (9.30)	3 (15.79)	5 (7.46)
School	1 (1.16)	-	1 (1.49)
Freelance	11 (12.79)	3 (15.79)	8 (11.95)
Working experience, y			
< 1	14 (16.28)	-	14 (20.89)
1 - 3	13 (15.12)	1 (5.26)	12 (17.91)
4 - 6	5 (5.81)	2 (10.53)	3 (4.48)
7 - 9	10 (11.63)	2 (10.53)	8 (11.95)
≥ 10	44 (51.16)	14 (73.68)	30 (44.77)
Patients			
Case types			
Delayed language development			
No	4 (4.65)	2 (10.53)	2 (2.99)
Yes	82 (95.35)	17 (89.47)	65 (97.01)
Articulation/phonological disorders			
No	5 (5.81)	2 (10.53)	3 (4.48)
Yes	81 (94.19)	17 (89.47)	64 (95.52)
Rehabilitation/aural rehabilitation			
No	34 (39.53)	6 (31.57)	28 (41.79)
Yes	52 (60.47)	13 (68.43)	39 (58.21)



Table 1. Characteristics of Speech-Language Pathologists and Their Patients (Continued)

Characteristic	No. (%)		
	Telepractice		
	Total (N = 86)	Not Used (n = 19)	Used (n = 67)
Voice/resonance disorders			
No	28 (32.56)	4 (21.06)	24 (35.82)
Yes	58 (67.44)	15 (78.94)	43 (64.18)
Motor speech disorders			
No	19 (22.09)	2 (10.53)	17 (25.37)
Yes	67 (77.91)	17 (89.47)	50 (74.63)
Learning disability			
No	29 (33.72)	4 (21.06)	25 (37.31)
Yes	57 (66.28)	15 (78.94)	42 (62.69)
Fluency disorders			
No	33 (38.37)	7 (36.84)	26 (38.80)
Yes	53 (61.63)	12 (63.16)	41 (61.20)
Aphasia			
No	28 (32.56)	5 (26.32)	23 (34.32)
Yes	58 (67.44)	14 (73.68)	44 (65.68)
Others*			
No	81 (94.19)	19 (100.00)	62 (92.54)
Yes	5 (5.81)	-	5 (7.46)
Age groups			
Child	21 (24.42)	3 (15.79)	18 (26.87)
Child and adult	10 (11.63)	4 (21.06)	6 (8.96)
Child and elderly	6 (6.98)	1 (5.26)	5 (7.46)
Child, adult, and elderly	48 (55.81)	10 (52.63)	38 (56.71)
Adult and elderly	1 (1.16)	1 (5.26)	-

* Other case types such as dysphagia, schizophrenia etc.

Characteristics and Diffusion of Innovation

Most SLPs expressed strong agreement or concurrence with the characteristics of telepractice innovation. Regarding the relative advantages of characteristics, SLPs with experience using telepractice expressed strong agreement or agreed with attitudes concerning the questions as follows: having comfort and convenience (Q1), reducing the cost of

services (Q2), and having the satisfaction of patients (Q4) (94.03%, 91.04%, and 71.64%, respectively). However, they expressed neutral attitudes (52.24%) concerning the improvement of patients' ability (Q3). SLPs without experience using telepractice expressed strong agreement or agreed with attitudes concerning the questions as follows: having comfort and convenience (Q1), and reducing the cost



of services (Q2) (89.47% and 94.74%, respectively), and expressed neutral attitudes with the questions as follows: improvement of patients' ability (Q3), and having satisfaction of patients (Q4) (52.63%, and 52.63%, respectively). Regarding the compatibility characteristic about meeting patients' needs and appropriateness for the current situation (Q5), both SLPs with and without experience using telepractice expressed strong agreement or agreed with attitudes (59.70% and 57.89%, respectively). For the complexity about having ease-of-use (Q6), both SLPs with and without experience using telepractice expressed neutral attitudes (52.24%

and 52.63%, respectively). With regard to the trialability characteristic concerning the ability to use and predict benefits quickly (Q7), both SLPs with and without experience using telepractice expressed strong agreement or agreed with attitudes (61.19% and 52.63%, respectively). For the observability characteristic regarding having a good system and observable benefits (Q8), both SLPs with and without experience using telepractice expressed strong agreement or agreed with attitudes (52.24% and 52.63%, respectively). SLPs' attitudes to all characteristics of telepractice innovation in both groups were not significantly different ($P > .05$) (Table 2).

Table 2. Speech-Language Pathologists' Attitudes Toward the Characteristics of Innovation

Characteristics Questionnaire	No. (%)						Mann-Whitney U Test	P Value*
	Attitude of Telepractice							
	Not Used (n = 19)			Used (n = 67)				
Strongly Agree to Agree	Neutral	Strongly Disagree to Disagree	Strongly Agree to Agree	Neutral	Strongly Disagree to Disagree			
Relative advantages								
Q1) Telepractice allowed patients to be comfort and convenient (eg, reducing travel time or registration).	17 (89.47)	2 (10.53)	-	63 (94.03)	3 (4.48)	1 (1.49)	-1.108	.27
Q2) Telepractice helped patients to reduce the cost of services (eg, travel, accommodation, other expenses).	18 (94.74)	1 (5.26)	-	61 (91.04)	4 (5.97)	2 (2.99)	-0.296	.77
Q3) Telepractice helped patients to improve their speech and language abilities.	7 (36.84)	10 (52.63)	2 (10.53)	29 (43.28)	35 (52.24)	3 (4.48)	-0.188	.85
Q4) Patients were satisfied after receiving telepractice service.	7 (36.84)	10 (52.63)	2 (10.53)	48 (71.64)	17 (25.37)	2 (2.99)	-1.640	.10



Table 2. Speech-Language Pathologists' Attitudes Toward the Characteristics of Innovation (Continued)

Characteristics Questionnaire	No. (%)						Mann- Whitney U Test	P Value*
	Attitude of Telepractice							
	Not Used (n = 19)			Used (n = 67)				
Strongly Agree to Agree	Neutral	Strongly Disagree to Disagree	Strongly Agree to Agree	Neutral	Strongly Disagree to Disagree			
Compatibility								
Q5) Telepractice was a service that meet the needs of patients and was appropriate for the current situation.	11 (57.89)	5 (26.32)	3 (15.79)	40 (59.70)	22 (32.84)	5 (7.46)	-0.884	.38
Complexity								
Q6) Telepractice was an easy to use.	3 (15.79)	10 (52.63)	6 (31.58)	18 (26.87)	35 (52.24)	14 (20.89)	-0.349	.73
Trialability								
Q7) If you try telepractice, you will understand the implementation and predict the benefits very quickly.	10 (52.63)	8 (42.11)	1 (5.26)	41 (61.19)	22 (32.84)	4 (5.97)	-0.704	.48
Observability								
Q8) Telepractice was a good system and there was obvious benefits (eg, the recipient of the innovation gained equal or greater than expected use benefit, the benefits from the innovation were multifaceted).	10 (52.63)	7 (36.84)	2 (10.53)	35 (52.24)	26 (38.81)	6 (8.95)	-0.204	.84

Abbreviation: Q, question.

* $P < .05$ indicates statistical significance.

SLPs' attitudes regarding diffusion of telepractice innovation were various. Regarding the communication channel element of diffusion about finding knowledge of telepractice from a variety of media sources (Q9), SLPs using telepractice showed strong agreement

or agreed with attitudes close to neutral attitudes (46.27% and 44.78%, respectively), but SLPs without experience using telepractice showed strong agreement or agreed (42.11%). Only this element had a statistically significant difference between SLPs with using



telepractice and without using telepractice ($P < .05$). For the time element of diffusion regarding the decision to use telepractice immediately (Q10), SLPs using telepractice showed strong agreement or agreed with attitudes near neutral attitudes (41.79% and 40.30%, respectively) but SLPs not using telepractice showed neutral attitudes (52.63%). For the social system element of diffusion, SLPs using telepractice showed strong agreement or agreed with questions as follows: easy acceptance to new changes (Q11), dissemination of knowledge or suggestions about telepractice to others (Q12), and regular contact with SLPs who used telepractice (Q13) (56.71%, 64.18%, and 49.25%, respectively). SLPs not using telepractice showed strong agreement or agreed with questions as follows: easy acceptance to new changes (Q11), and dissemination of knowledge or suggestions about telepractice to others (Q12) (47.36% and 52.63%, respectively). However, the question regarding regular

contact with SLPs who used telepractice (Q13) showed strong agreement or agreed with attitudes equal to neutral attitudes (36.84%) (Table 3).

For the summarization of SLPs' agreement attitudes toward characteristic and diffusion of telepractice innovation, the data on the SLPs' attitudes were modified into percentages (disagree, 0% - 50%; agree, 51% - 100%). The results showed that 47 (54.66%) SLPs agreed with the characteristics of telepractice innovation, including 38 (80.85%) SLPs using telepractice and 9 (19.15%) SLPs not using telepractice. For the diffusion of telepractice innovation, 39 (45.34%) SLPs agreed including 33 (84.62%) SLPs using telepractice and 6 (15.38%) SLPs not using telepractice. Moreover, the number of SLPs who agreed with the characteristics and diffusion of telepractice innovation was equal to those who disagreed, accounting for 32 (37.21%) SLPs including 28 (87.50%) SLPs using telepractice and 4 (12.50%) SLPs not using telepractice (Table 4).

Table 3. Speech-Language Pathologists' Attitudes Toward Diffusion of Innovation

Diffusion Questionnaire	No. (%)						Mann-Whitney U Test	P Value*
	Attitude of Telepractice							
	Not used (n = 19)			Used (n = 67)				
	Strongly Agree to Agree	Neutral	Strongly Disagree to Disagree	Strongly Agree to Agree	Neutral	Strongly Disagree to Disagree		
Communication channels								
Q9) You find the knowledge of telepractice from a variety of media such as books, research, websites, training programs, etc.	8 (42.11)	5 (26.32)	6 (31.57)	31 (46.27)	30 (44.78)	6 (8.95)	-2.122	.03
Time								
Q10) When you know that telepractice is being used you decide to use it immediately.	3 (15.80)	10 (52.63)	6 (31.57)	28 (41.79)	27 (40.30)	12 (17.91)	-0.140	.89



Table 3. Speech-Language Pathologists' Attitudes Toward Diffusion of Innovation (Continued)

Diffusion Questionnaire	No. (%)						Mann-Whitney U Test	P Value*
	Attitude of Telepractice							
	Not used (n = 19)			Used (n = 67)				
	Strongly Agree to Agree	Neutral	Strongly Disagree to Disagree	Strongly Agree to Agree	Neutral	Strongly Disagree to Disagree		
Social system								
Q11) You easily accept new changes, especially from a face-to-face practice at the clinic to telepractice.	9 (47.36)	5 (26.32)	5 (26.32)	38 (56.71)	26 (38.81)	3 (4.48)	-1.886	.06
Q12) You can disseminate knowledge or suggest telepractice to others (eg, speech therapists, patients, parents, teachers) who are interested.	10 (52.63)	8 (42.11)	1 (5.26)	43 (64.18)	19 (28.36)	5 (7.46)	-1.105	.27
Q13) You can be in regular contact with a speech-language pathologist who uses telepractice.	7 (36.84)	7 (36.84)	5 (26.32)	33 (49.25)	26 (38.81)	8 (11.94)	-0.761	.45

Abbreviation: Q, question.

* $P < .05$ indicates statistical significance.

Table 4. Speech-Language Pathologists' Agreement Attitudes Toward Characteristics and Diffusion of Innovation

Attitude	No. (%)		
	Telepractice Experience		
	Total	No	Yes
Characteristics			
Agreed	47 (54.66)	9 (19.15)	38 (80.85)
Disagreed	39 (45.34)	10 (25.64)	29 (74.36)
Diffusion			
Agreed	39 (45.34)	6 (15.38)	33 (84.62)
Disagreed	47 (54.66)	13 (27.66)	34 (72.34)
Characteristics and diffusion			
Agreed All	32 (37.21)	4 (12.50)	28 (87.50)
Disagreed All	32 (37.21)	8 (25.00)	24 (75.00)
Agreed with characteristics but disagreed with diffusion	15 (17.43)	5 (33.33)	10 (66.67)
Disagreed with characteristics but agreed with diffusion	7 (8.15)	2 (28.57)	5 (71.43)



Relationship Between the Summarization of SLPs' Agreement Attitudes Toward Characteristics, Diffusion, and Limitations of Telepractice Innovation

Limitations of telepractice innovation were grouped into 4 items, comprising SLP (SLPs' telepractice knowledge/experience), patient (rejected telepractice, age of patient inappropriate, type of communication disorders of patient, and lack of device), system (lack of organization telepractice system/equipment/internet), and unknown (not specified). Most SLPs using telepractice had limitations from patient restriction, accounting for 35 (52.24%) SLPs. When mentioning SLPs' agreement with attitudes toward characteristics and diffusion of telepractice innovation, the majority of SLPs who agreed and disagreed all had limitations from patient restrictions, accounting for 16 (57.14%) SLPs and 10 (41.67%) SLPs, respectively. Meanwhile, most SLPs not using telepractice had limitations from the telepractice system, accounting

for 9 (47.37%) SLPs. When considering SLPs' agreement with attitudes toward the characteristics and diffusion of telepractice innovation, the majority of SLPs who agreed had limitations from the telepractice system, accounting for 3 (75.00%) SLPs, and the majority of SLPs who disagreed all had equal amounts of limitations from SLP and patient restrictions, accounting for 3 (37.50%) SLPs for each item (Table 5).

Discussion

The response rate of the SLPs in this questionnaire was 42.65%, which is higher than Kollia et al.¹⁴ When considering the number of SLPs who responded to the present questionnaire, it is higher than those of Hao et al,¹³ Hines et al,¹⁵ and Overby et al,¹⁶ but less than those of Fong et al²¹ and Santayana et al.²² The percentage of SLPs who used telepractice in this study was higher than

Table 5. Relationship Between Speech-Language Pathologists' Attitudes Toward the Characteristics, Diffusion, and Limitations of Telepractice Innovation

Attitude	No. (%)				
	Limitation				
	Total	Pathologist	Patient	System	Unknown*
Without telepractice experience (n = 19)					
Agreed All	4 (21.05)	1 (25.00)	-	3 (75.00)	-
Disagreed All	8 (42.11)	3 (37.50)	3 (37.50)	2 (25.00)	-
Agreed with characteristics but disagreed with diffusion	5 (26.32)	1 (20.00)	-	4 (80.00)	-
Disagreed with characteristics but agreed with diffusion	2 (10.52)	-	1 (50.00)	-	1 (50.00)
Total	19 (100.00)	5 (26.32)	4 (21.05)	9 (47.37)	1 (5.26)
With telepractice experience (n = 67)					
Agreed All	28 (41.79)	3 (10.71)	16 (57.14)	8 (28.57)	1 (3.58)
Disagreed All	24 (35.82)	3 (12.50)	10 (41.67)	9 (37.50)	2 (8.33)
Agreed with characteristics but disagreed with diffusion	10 (14.93)	1 (10.00)	5 (50.00)	4 (40.00)	-
Disagreed with characteristics but agreed with diffusion	5 (7.46)	-	4 (80.00)	1 (20.00)	-
Total	67 (100.00)	7 (10.45)	35 (52.24)	22 (32.83)	3 (4.48)

* Participants did not specify the reason of limitation.



that of Fong et al.²¹ The gender and age of the SLPs in this study were the same as in the previous research, but with more females than males, and the age range was from 21 years to more than 60 years.^{13,16} This study included the details regarding the level of education of the SLPs, but past studies did not.^{13-15, 21, 23} This information might be useful when discussing the topic of limitations to telepractice use if the limitations primarily resulted from the SLPs. For the workplace, in this study it was the same as Peh et al.²³ in that most SLPs worked at a hospital but worked was different from the others in that most SLPs at a community agency or school.^{13-14, 21} SLPs' work experience was not different from previous studies in which participants had experience of less than 1 year to more than 10 years.^{13-14, 22} The case type and age of patients were similar to studies of Overby et al.¹⁶ and Peh et al.²³ in that the SLPs treated all case types of communication disorders and all age groups.

All of the results regarding the SLPs' attitudes toward the characteristics of telepractice innovation in this study were similar to those of previous studies^{13-14, 21, 23} that indicated that the compatibility characteristic was appropriate in terms of use during the COVID-19 pandemic. Most SLPs with experience using and those without experience using telepractice strongly agreed or agreed with almost all characteristics, except the complexity characteristic toward which they expressed neutral attitudes more than other attitudes because telepractice requires knowledge of technology and internet system access.

This study was different from previous studies because researchers not only studied the characteristics of telepractice innovation but also covered the diffusion of telepractice innovation. Most SLPs who used telepractice and expressed strong agreement or concurrence with attitudes to communication channels and time elements were close to SLPs who had neutral attitudes because they might not have a sufficient impact on knowledge of telepractice for immediate use and diffusion. In accordance with SLPs who did not use telepractice,

they had weaker agreement or concurrence with attitudes to time elements because they had used telepractice in the past until the present. If SLPs have strong agreement to concurrence with attitudes to communication channels and time elements, the diffusion of telepractice will spread in Thailand because SLPs have agreement with all diffusion elements (communication channels, time, and social system).

The summarization of SLPs' agreement with attitudes toward the characteristics and diffusion of innovation revealed that the number of SLPs who agreed with the characteristics of telepractice innovation was similar to the number who disagreed. SLPs agreed with the characteristic of telepractice innovation, but not all of them agreed with the diffusion of telepractice. The possible reason for this was that telepractice had convenience and reduced cost of services for patients but had a complicated system. Knowledge of telepractice was essential for the distribution of telepractice.^{13-14, 21, 23}

Regarding the limitations of telepractice according to SLPs' telepractice experience, SLPs using telepractice had a major problem from patient conditions, while SLPs not using telepractice had a major problem from system conditions. The reason was likely that SLPs who used telepractice already had support for the telepractice system from their organization. Therefore, SLPs actually used telepractice in real situations, especially SLPs who agreed with the characteristics and diffusion of telepractice innovation. Further, they might control their communication system more than patients who stayed in other areas.^{8, 13, 23} Patient conditions included rejection of telepractice, inappropriate age of patients, inappropriate type of patients, patients' attention, parents' workloads, etc. On the contrary, SLPs who did not use telepractice had a major problem from system conditions because they might not have adequate support from their organization for media, equipment or the telepractice system. Thus, they did not actually use telepractice in real situations, and these conditions



might occur from the conception of SLPs to the telepractice system. However, the limitation of system conditions was a major obstacle that impacted both SLPs who agreed and disagreed with the characteristics and diffusion of telepractice innovation. The system conditions were internet access, telepractice instruments, privacy, patients' rights, etc. Furthermore, another important limitation of telepractice conditions was related to SLPs in terms of telepractice experience, telepractice training, workload, etc.^{8, 13, 24-26}

As seen from the results above, telepractice innovation has both strengths and weaknesses. It is an alternative treatment for speech therapy that was not commonly used in the past in Thailand. Therefore, it has been introduced recently as a necessity and when appropriate for the patients or situations.^{8, 13-14, 23}

Conclusions

SLPs in Thailand equally expressed attitudes of agreement and disagreement toward the characteristics

and diffusion of telepractice innovation, but SLPs using telepractice agreed with the characteristics and diffusion of telepractice innovation more than SLPs not using telepractice. SLPs agreed with the characteristics of telepractice innovation, but not all of them agreed with the diffusion of telepractice. The limitations of telepractice innovation depended on telepractice experience as following SLPs using telepractice had limitations from patient conditions and SLPs not using telepractice had limitations from system conditions. SLPs should develop clinical practice guidelines for telepractice and should designate patient criteria that are appropriate for telepractice. Thus, telepractice may be considered as an optional method to use according to necessity and its appropriateness for patients' needs or the situation.

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การสำรวจความเป็นไปได้ของการนำนวัตกรรมการฝึกพูดออนไลน์ของนักแก้ไขการพูดมาใช้ปฏิบัติในประเทศไทย

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บทนำ: คลินิกฝึกพูด โรงพยาบาลรามาธิบดี ให้บริการฝึกพูดออนไลน์มาเป็นเวลา 2 ปี ผลลัพธ์ที่ได้มีประโยชน์อย่างชัดเจน และระบบใหม่นี้ยังไม่เคยมีการศึกษาในประเทศไทยในเชิงนวัตกรรม

วัตถุประสงค์: เพื่อสำรวจความเป็นไปได้ที่นักแก้ไขการพูดในประเทศไทย นำนวัตกรรมฝึกพูดออนไลน์มาใช้โดยสำรวจทัศนคติต่อคุณลักษณะการแพร่กระจาย และข้อจำกัดของนวัตกรรม

วิธีการศึกษา: การศึกษาเชิงสำรวจในนักแก้ไขการพูดในประเทศไทย โดยใช้แบบสอบถามสะท้อนทัศนคติต่อนวัตกรรมฝึกพูดออนไลน์ เก็บรวบรวมข้อมูล และวิเคราะห์โดยใช้สถิติพรรณนาและการวิเคราะห์เชิงอนุมาน

ผลการศึกษา: นักแก้ไขการพูดตอบแบบสอบถาม จำนวน 86 คน โดยยอมรับคุณลักษณะ การแพร่กระจาย และทั้งคุณลักษณะและการแพร่กระจายของนวัตกรรมฝึกพูดออนไลน์ คิดเป็นร้อยละ 54.66 ร้อยละ 45.34 และร้อยละ 37.21 ตามลำดับ โดยส่วนมากเป็นผู้ใช้ฝึกพูดออนไลน์ ข้อจำกัดของผู้ใช้ฝึกพูดออนไลน์ เกิดจากผู้ป่วย คิดเป็นร้อยละ 52.24 และผู้ไม่ใช้เกิดจากระบบ คิดเป็นร้อยละ 47.36

สรุป: นักแก้ไขการพูดในประเทศไทยมีทัศนคติทั้งเห็นด้วยและไม่เห็นด้วยต่อคุณลักษณะและการแพร่กระจายของนวัตกรรมฝึกพูดออนไลน์เท่ากัน โดยผู้ใช้ฝึกพูดออนไลน์ยอมรับมากกว่า ผู้ที่ยอมรับคุณลักษณะไม่ได้ยอมรับการแพร่กระจายทุกคน ข้อจำกัดขึ้นอยู่กับประสบการณ์ผู้ใช้ฝึกพูดออนไลน์ ผู้ใช้มีข้อจำกัดจากผู้ป่วยแต่ผู้ไม่ใช้เกิดจากระบบ ดังนั้น นวัตกรรมฝึกพูดออนไลน์อาจเป็นทางเลือกที่ได้รับความจำเป็นของผู้ป่วยและความเหมาะสมของสถานการณ์

คำสำคัญ: นักแก้ไขการพูด ฝึกพูดออนไลน์ นวัตกรรม ทัศนคติ

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