

Online counseling competences among Thai secondary school advisory teachers: a confirmatory factor analysis

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ABSTRACT

The increasing reliance on digital technology in education, accelerated by the COVID-19 pandemic, highlights the urgent need to understand online counseling competencies among secondary school advisory teachers. However, limited empirical evidence exists regarding the structure of these competencies in the Thai educational context. This study aimed to examine the components and validate a model of online counseling competences among secondary school advisory-teachers in Thailand. A total of 400 teachers from the Northeastern region were selected using multistage stratified random sampling. Data were collected through self-reported questionnaires and analyzed using second-order confirmatory factor analysis (CFA). The findings indicate that online counseling competences comprises three components: adaptive online counseling proficiency (AOC), school online counseling ethics (SCE), and secure comprehensive technology-integrated online counseling systems (SCS). The model demonstrated strong fit indices ($\chi^2=76.240$, $df=70$, $p\text{-value}=0.284$, $\chi^2/df=1.089$; root mean square error of approximation (RMSEA)=0.015; standardized root mean square residual (SRMR)=0.029; normed fit index (NFI)=0.990; comparative fit index (CFI)=1.000). This model provides a framework to guide training and policy development aimed at enhancing the effectiveness of online counseling services in Thai secondary schools.

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1. INTRODUCTION

With the advancement in the digital environment, it is increasingly important to integrate technology into the educational sector to enhance the functionality of counseling services within secondary schools [1]–[3]. Thailand has taken significant steps in incorporating online counseling, particularly as the global shift towards digital communication and remote services has accelerated due to COVID-19 [4], [5]. This study aims to determine the competencies required for effective online counseling among advisory teachers in Thai secondary schools through confirmatory factor analysis (CFA). Knowledge of such competencies is paramount to ensuring that advisory teachers can support students effectively in a digital world, thereby enhancing both their psychological wellness and academic performance [6]–[9].

Internationally, online counseling has gained recognition as a crucial component in education systems, particularly in addressing the diverse needs of students in remote or underserved areas [10]–[12]. Countries like the United States, Lebanon, and the United Kingdom have developed comprehensive online counseling frameworks to provide continuous support to students, leveraging digital tools to overcome the

limitations of face-to-face interactions [13]–[16]. These global advancements underscore the need for Thailand to align with international best practices by developing robust online counseling competencies among its advisory teachers.

Identified competencies for online counseling in educational contexts include adaptive online counseling proficiency (AOC), adherence to school online counseling ethics (SCE), and the establishment of secure comprehensive technology-integrated online counseling systems (SCS). These competencies are critical for advisory teachers as they navigate the challenges of digital counseling, ensuring that students receive timely and effective help, even in a remote setting [17]. Furthermore, the transition to online counseling necessitates an evaluation of traditional counseling models to incorporate technological competence and address emerging concerns related to reliability and ethics in online service provision [18], [19].

AOC refers to the counselor's ability to effectively utilize digital technologies and various online platforms in delivering counseling services [20]. This proficiency encompasses not only a deep understanding of different communication technologies but also innovative approaches to addressing the needs of a diverse student population [21]. For example, conducting counseling sessions through video conferencing, online chats, or emails requires distinct skills compared to traditional face-to-face counseling [22]. Moreover, advisory teachers must be equipped to recognize and mitigate potential communication breakdowns in non-physical formats, as maintaining the quality of counseling interactions is crucial.

SCE is another essential component that involves the application of ethical principles in the digital context. This includes safeguarding confidentiality, establishing clear boundaries for online interactions, and protecting student data privacy. As emphasized by the National Board for Certified Counselors (NBCC) [23] and the American Counseling Association (ACA) [24], upholding ethical standards in online counseling is vital for fostering trust and ensuring student well-being. In Thailand, the emphasis on ethical online counseling practices is particularly critical given the country's growing digital footprint and the associated risks of data breaches and cyber threats.

SCS are vital for establishing a solid infrastructure that supports effective online counseling [25]. This involves integrating secure e-platforms, utilizing versatile digital tools, and developing psychometrically sound digital assessments. The reliability of these systems is essential for ensuring that counseling services are not only accessible but also secure, thus protecting sensitive student information from unauthorized access [26], [27]. Moreover, these systems facilitate continuous monitoring and evaluation, allowing for the refinement of online counseling practices based on empirical data.

Despite these advancements, there remains a significant gap in the availability and effectiveness of online counseling in educational settings within Thailand. While international practices offer valuable insights, the adaptation and implementation of such systems in Thailand have been limited. This research seeks to address these gaps by employing CFA to establish a model of online counseling competencies among advisory teachers in Thai secondary schools. The cross-sectional design of this study, involving 400 advisory teachers from the Northeastern region of Thailand, will provide a comprehensive evaluation of the theoretical assumptions underpinning these competencies [28], [29].

Investigating the online counseling competencies of advisory teachers is crucial for improving the quality of counseling services within the Thai educational sector. This study aims to answer the research question:

- What are the key components of online counseling competencies among secondary school advisory teachers in Thailand?
- How can a model representing these components be validated through CFA?

This research is significant because it addresses the limited understanding of digital counseling competencies in Thai education. The novelty lies in the development and validation of a model tailored to the local context, with implications for policy, training, and practice.

2. METHOD

This study adopted a cross-sectional research design to systematically examine the components of online counseling competencies among secondary school advisory teachers in Thailand. The design also supported the development and reliability evaluation of an online counseling competence model specifically contextualized for this group. Relevant components and indicators were identified through a comprehensive synthesis of documents and empirical studies on online counseling competencies derived from various educational institutions and professional sources [23], [24], [30]–[32]. This methodological approach is consistent with established recommendations by Mueller [28], Hu and Bentler [29], and Kanchanawasi [33], who emphasize the suitability of CFA for construct validation. Based on the results of this synthesis, three core components, comprising 15 indicators, were selected for empirical analysis.

Component 1, AOC, comprises five indicators: online counselors: theory and skill expertise (OCE), creative and adaptive online counselors (CAC), online chat and voice on devices ingenuity (CVD), text-voice emotional expression (TVE), and online miscommunication resolving (OMR). Component 2, SCE, encompasses five indicators: flexible online service options (FOS), cybercounseling boundaries (CCB), personal media blockade (PMB), online privacy consideration (OPC), and client privacy protection (CPP). Component 3, SCS, includes five indicators: technology solving (TNS), versatile platform use (VPU), secure e-platform system integration (SES), digital psychometric design (DPD), and comprehensive e-platform and tools utilization (CEU). The researchers propose a conceptual framework for studying the components of online counseling competences among Thai secondary school advisory-teachers in this research, as depicted in Figure 1.

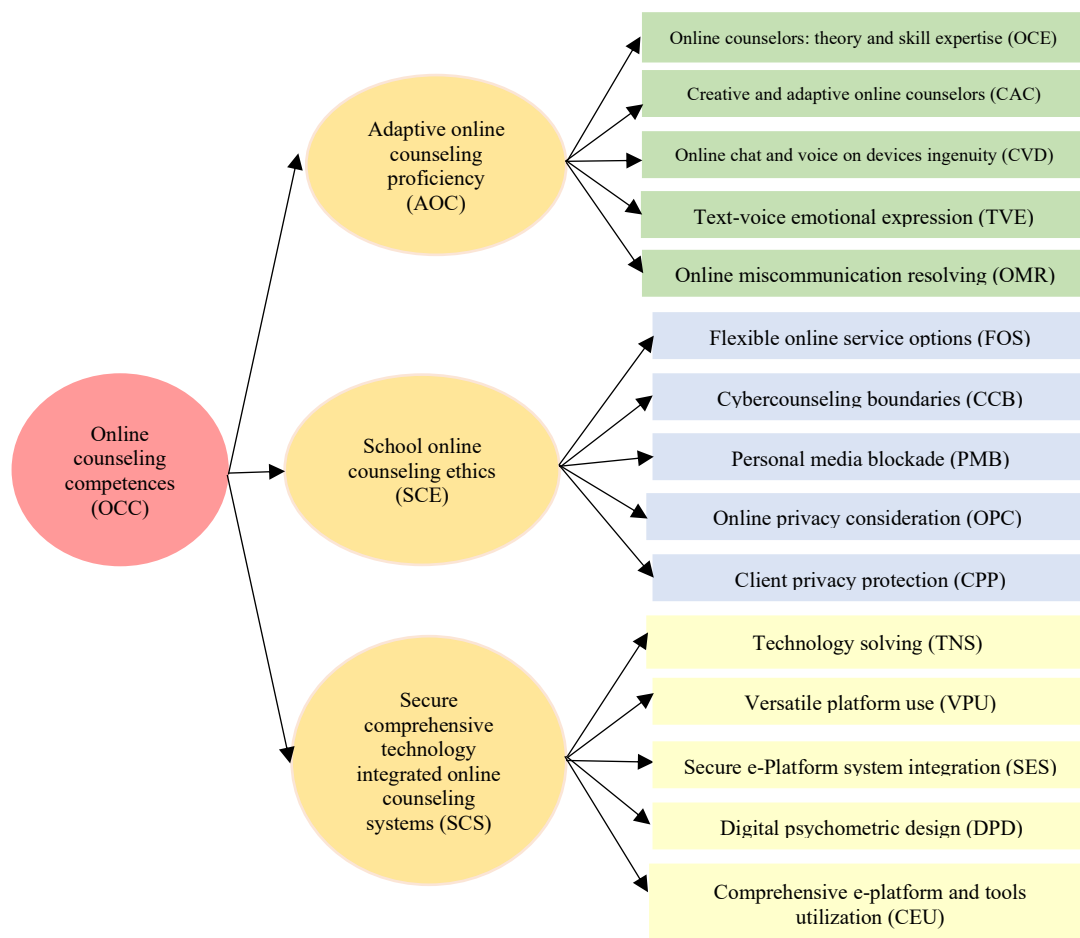


Figure 1. Conceptual framework for studying the components of online counseling competences among advisory teachers

The study population comprised secondary school advisory teachers working in schools in the Northeastern region of Thailand during the 2024 academic year. Participants were selected through a multistage stratified sampling procedure to ensure adequate representation across relevant strata. CFA was employed to examine the construct validity of the proposed measurement model. Given the requirements of CFA, an adequate sample size and an approximately normal distribution of the data were essential. Accordingly, a total of 400 advisory teachers were included in the study. In line with the recommendation by Hair *et al.* [34], which suggests a minimum sample size of 5–20 cases per estimated parameter, the inclusion of 15 observed indicators required at least 300 respondents; thus, the obtained sample size was deemed sufficient. Methodological rigor and trustworthiness were further strengthened through triangulation, incorporating evidence from a comprehensive literature review, survey data, and in-depth interviews with subject-matter experts. The procedures implemented in the study are outlined as:

First, the Northeastern region of Thailand was classified according to the regional division framework of the Office of the Public Sector Development Commission (OPDC), based on the Royal Decree

on the Administration of Provinces and Integrated Provincial Groups (B.E. 2551). This framework categorizes the region into five groups: i) Upper Northeastern Group 1 (Nong Khai, Loei, Udon Thani, and Nong Bua Lam Phu); ii) Upper Northeastern Group 2 (Nakhon Phanom, Mukdahan, and Sakon Nakhon); iii) Central Northeastern Group (Roi Et, Khon Kaen, Maha Sarakham, and Kalasin); iv) Lower Northeastern Group 1 (Surin, Nakhon Ratchasima, Buriram, and Chaiyaphum); and v) Lower Northeastern Group 2 (Amnat Charoen, Sisaket, Yasothon, and Ubon Ratchathani).

Second, one Secondary Education Service Area Office from each regional group, under the Office of the Basic Education Commission, Ministry of Education, was selected using simple random sampling. The five selected service area offices were Udon Thani, Nakhon Phanom, Maha Sarakham, Surin, and Ubon Ratchathani–Amnat Charoen.

Third, stratified random sampling was employed to select secondary school advisory teachers from each service area office. Participants were stratified by school size into small, medium-sized, large, and special large schools, with an equal allocation of 100 advisory teachers per stratum. This procedure resulted in 80 participants from each service area office, for a total sample of 400 respondents. Finally, data collection was conducted using accidental sampling to reach the predetermined number of participants, in accordance with the established sampling framework.

2.1. Research procedure

To conduct this study, several systematic procedures were undertaken. First, an extensive review of both national and international literature on online counseling competencies was conducted to establish a conceptual and empirical foundation. Subsequently, a survey was administered to secondary school advisory teachers to gather their perspectives on online counseling competencies, and each questionnaire took approximately 15–20 minutes to complete. The aim was to identify the core competency components, examine their relationships, and provide evidence to inform the development of future training programs.

In addition, the relevance and clarity of the proposed indicators were examined through in-depth interviews with a panel of nine experts, comprising three specialists in counseling, three in secondary education, and three in research methodology. Based on the integration of findings from the literature review, survey responses, and expert consultations, a research instrument consisting of 15 items measured on a 5-point Likert scale was developed and validated. Mean scores were used to classify competency levels into five categories [35]. Content validity was confirmed by three experts, yielding a content validity index (CVI) of 1.00. A pilot study further demonstrated excellent internal consistency, with a Cronbach's alpha coefficient of 0.992. Finally, CFA was performed, and the validated questionnaire was administered to a larger sample of 400 secondary school advisory teachers to ensure adequate statistical power and reliability.

2.2. Data analyses

Data were analyzed using SPSS version 25.0 and LISREL software. Descriptive statistics were used to summarize demographic characteristics and all study variables. Pearson's product-moment correlation and Spearman's rank correlation coefficients were applied to examine relationships among the observed variables. CFA was subsequently conducted to validate the measurement model of online counseling competencies among secondary school advisory teachers in Thailand. Prior to analysis, all relevant statistical assumptions were verified. Model fit was evaluated using multiple goodness-of-fit indices, including a non-significant Chi-square test (χ^2 , $p > 0.05$), a normed Chi-square degrees of freedom ratio (χ^2/df) of less than 2.0, a low root mean square error of approximation (RMSEA), comparative fit index (CFI), and normed fit index (NFI) values approaching 1.0, and a standardized root mean square residual (SRMR) close to 0.0 [36]. All statistical analyses were conducted with a significance level set at $p < 0.05$.

3. RESULTS

The analysis of personal factors among 400 respondents from the online counseling competencies questionnaires for secondary school advisory teachers revealed the following demographics: the majority were female (60.5%) and the average age was 34.8 years, ranging from 24 to 56. Most respondents had less than 10 years of work experience (53%), with 20.5% having 10–20 years and 19.75% over 20 years. Participants were evenly distributed across various secondary education service offices in Northeastern Thailand, with 25% from Udon Thani, Nakhon Phanom, Maha Sarakham, Surin, and Ubon Ratchathani–Amnat Charoen, and represented all school sizes. The main areas of expertise were science and technology (19.75%), mathematics (19.25%), and foreign language (12.5%). The largest group advised Grade 3 (21%), followed by Grade 4 (18.5%), and Grade 5 (16.75%). All participants had experience in face-to-face psychological counseling, while 64% offered online counseling services, and 42% participated in developing online counseling systems, as seen in Table 1.

Table 1. Sociodemographic status of the sample who responded to the online counseling competences questionnaires for secondary school advisory-teachers

	Demographic characteristics	Number (person)	Percentage (%)
Gender	Male	158	39.50
	Female	242	60.50
Age	24-30 years	156	39.00
	31-40 years	124	31.00
	41-50 years	111	27.75
	51-60 years	9	2.25
	>60 years	212	53.00
Work experience	<10 years	109	27.25
	10-20 years	79	19.75
	>20 years	80	20.00
Secondary education service area offices	Udon Thani	80	20.00
	Nakhon Phanom	80	20.00
	Maha Sarakham	80	20.00
	Surin	80	20.00
	Ubon Ratchathani-Amnat Charoen	80	20.00
Size of school	Special large schools	100	25.00
	Large schools	100	25.00
	Medium-sized schools	100	25.00
	Small schools	100	25.00
Affiliated learning areas	Mathematics	77	19.25
	Thai language	47	11.75
	Foreign language	50	12.50
	Arts education	31	7.75
	Science and technology	79	19.75
	Career and technical education	10	2.50
	Social studies, religion, and culture	37	9.25
	Health and physical education	44	11.00
	Student development activities/guidance	25	6.25
	Grade level assigned as an advisory	53	13.25
Grade level assigned as an advisory	Grade 2	65	16.25
	Grade 3	84	21.00
	Grade 4	74	18.50
	Grade 5	67	16.75
	Grade 6	57	14.25
	Grade 7	400	100.00
Experience in providing face-to-face psychological counseling services	Yes	256	64.00
Experience in providing online psychological counseling services	No	144	36.00
Experience in participating in the study	Yes	168	42.00
and development of online counseling service systems	No	232	58.00

This study analyzed scores from online counseling competence questionnaires completed by secondary school advisory teachers, focusing on mean values and standard deviations. The results indicated a moderate overall competency level, with a mean score of 2.97 (S.D.=0.57). Among individual components, SCE scored the highest (mean=2.98, S.D.=0.64), followed by SCS (mean=2.95, S.D.=0.70) and AOC (mean=2.92, S.D.=0.62). Within AOC, creative and adaptive counselors achieved the highest mean score (mean=3.20, S.D.=0.79). For SCE, flexible service options led with a mean score of 3.07 (S.D.=0.76), while technology problem-solving in secure systems also scored 3.07 (S.D.=0.86), as shown in Table 2. The online counseling competences scores among secondary school advisory-teachers comprised 15 sub-components. Intercorrelations among these components ranged from 0.221 to 0.682, with all relationships statistically significant at the 0.01 level, as shown in Table 3.

The results of the CFA of online counseling competences for secondary school advisory-teachers exhibited that all components had factor loadings (β) ranging from 0.55 to 0.91, all statistically significant at the 0.01 level. The first-order components included three main facets: AOC, SCE, and SCS, each with robust sub-components. Notably, within AOC, the highest factor loading was for OCE. Within SCE, OPC had the highest factor loading, and within SCS, TNS, and CEU had the highest factor loading.

For the second-order components, SCE had the highest factor loading (β =0.91), followed by AOC (β =0.90) and SCS (β =0.87). Additionally, the analysis indicated that each component had a substantial prediction coefficient (R^2). AOC and SCE had the highest R^2 value (R^2 =0.82), indicating its ability to explain 82.00% of the variance in online counseling competences for secondary school advisory-teachers, as seen in Table 4.

Table 2. Mean and standard deviation of the online counseling competences questionnaires for secondary school advisory-teachers

Component	Mean (M)	Standard deviation (SD)	Level
AOC	2.92	0.62	Moderate
OCE	3.00	0.78	Moderate
CAC	3.20	0.79	Moderate
CVD	2.99	0.87	Moderate
TVE	2.95	0.84	Moderate
OMR	2.49	0.99	Moderate
SCE	2.98	0.64	Moderate
FOS	3.07	0.76	Moderate
CCB	2.90	0.88	Moderate
PMB	2.96	0.87	Moderate
OPC	2.97	0.87	Moderate
CPP	3.01	0.77	Moderate
SCS	2.95	0.70	Moderate
TNS	3.07	0.86	Moderate
VPU	2.94	0.92	Moderate
SES	2.84	0.90	Moderate
DPD	2.93	0.90	Moderate
CEU	3.01	0.89	Moderate
Overall	2.95	0.57	Moderate

Table 3. Correlation coefficient of online counseling competences for secondary school advisory-teachers

Components		AOC			SCE			SCS			SCS			SCS		
		OCE	CAC	CVD	TVE	OMR	FOS	CCB	PMB	OPC	CPP	TNS	VPU	SES	DPD	CEU
AOC	OCE	1														
	CAC	0.60*	1													
	CVD	0.52*	0.47*	1												
	TVE	0.40*	0.43*	0.39*	1											
	OMR	0.38*	0.36*	0.35*	0.29*	1										
SCE	FOS	0.43*	0.38*	0.39*	0.31*	0.35*	1									
	CCB	0.34*	0.31*	0.34*	0.28*	0.38*	0.45*	1								
	PMB	0.39*	0.38*	0.45*	0.30*	0.41*	0.51*	0.55*	1							
	OPC	0.43*	0.40*	0.39*	0.36*	0.41*	0.50*	0.56*	0.61*	1						
	CPP	0.44*	0.37*	0.39*	0.30*	0.39*	0.44*	0.41*	0.45*	0.48*	1					
SCS	TNS	0.44*	0.41*	0.44*	0.34*	0.28*	0.44*	0.39*	0.41*	0.42*	0.51*	1				
	VPU	0.36*	0.33*	0.39*	0.38*	0.22*	0.39*	0.36*	0.34*	0.41*	0.38*	0.53*	1			
	SES	0.32*	0.37*	0.41*	0.36*	0.35*	0.36*	0.37*	0.40*	0.41*	0.44*	0.47*	0.57*	1		
	DPD	0.45*	0.32*	0.37*	0.28*	0.28*	0.44*	0.34*	0.38*	0.45*	0.39*	0.52*	0.51*	0.45*	1	
	CEU	0.41*	0.37*	0.38*	0.31*	0.27*	0.40*	0.40*	0.41*	0.46*	0.41*	0.40*	0.46*	0.44*	0.68*	1

Note: p* < 0.01

Table 4. Factor loadings (β), statistical significance tests (t), and prediction coefficients (R^2) of the CFA

Online counseling competences components			Component weight matrix			Factor score	R^2
			β	SE	t		
Component 1	AOC	OCE	0.72	0.04	15.10**	0.26	0.51
		CAC	0.67	0.04	13.63**	0.18	0.44
		CVD	0.70	0.04	14.64**	0.25	0.48
		TVE	0.58	0.04	11.61**	0.16	0.33
		OMR	0.55	0.05	11.07**	0.14	0.31
	SCE	FOS	0.69	0.04	14.79**	0.24	0.48
		CCB	0.67	0.04	14.10**	0.17	0.45
		PMB	0.71	0.04	14.77**	0.15	0.50
		OPC	0.77	0.04	16.80**	0.28	0.59
		CPP	0.65	0.04	13.63**	0.18	0.42
	SCS	TNS	0.76	0.04	16.75**	0.28	0.57
		VPU	0.71	0.04	14.86**	0.22	0.50
		SES	0.67	0.04	13.72**	0.17	0.45
		DPD	0.70	0.04	14.85**	0.10	0.49
		CEU	0.76	0.04	15.90**	0.28	0.57
Component 2	AOC		0.90	0.06	13.43**	0.82	0.90
	SCE		0.91	0.07	13.14**	0.82	0.91
	SCS		0.87	0.06	14.00**	0.75	0.87

Note: **p < 0.01, *p < 0.05.

Based on the criteria proposed by Carmines and McIver [36], the model fit indices obtained from the second-order CFA indicated that the proposed model demonstrated an acceptable fit with the empirical data. The χ^2 value was 76.240 with a corresponding p-value of 0.284, which was not statistically significant at the .05 level. Additional fit indices met recommended thresholds, including a relative χ^2/df of 1.089, below the cutoff value of 2.0. The CFI was 1.00, and the NFI was 0.990, both approaching unities. Moreover, the SRMR and RMSEA were 0.029 and 0.015, respectively, indicating minimal residual error. Overall, these results confirm that the second-order confirmatory factor model of online counseling competences for secondary school advisory teachers was well supported by the data, as illustrated in Table 5. To clearly present the online counseling competences model for secondary school advisory-teachers, the researchers introduced the second-order confirmatory factor model of the for secondary school advisory-teachers, as illustrated in Figure 2.

Table 5. Test indices for the second-order CFA model of the online counseling competences for secondary school advisory-teachers

Fit index	Criterion	Criteria for evaluation
Chi-square (χ^2)	76.240	Not statistically significant
P-value	0.0753	>0.05
Degrees of freedom (df)	70	-
Relative Chi-square (χ^2/df)	1.089	<2.0
CFI	1.000	Value approaching 1.0
NFI	0.990	Value approaching 1.0
SRMR	0.029	Value approaching 0.0
RMSEA	0.015	Value approaching 0.0

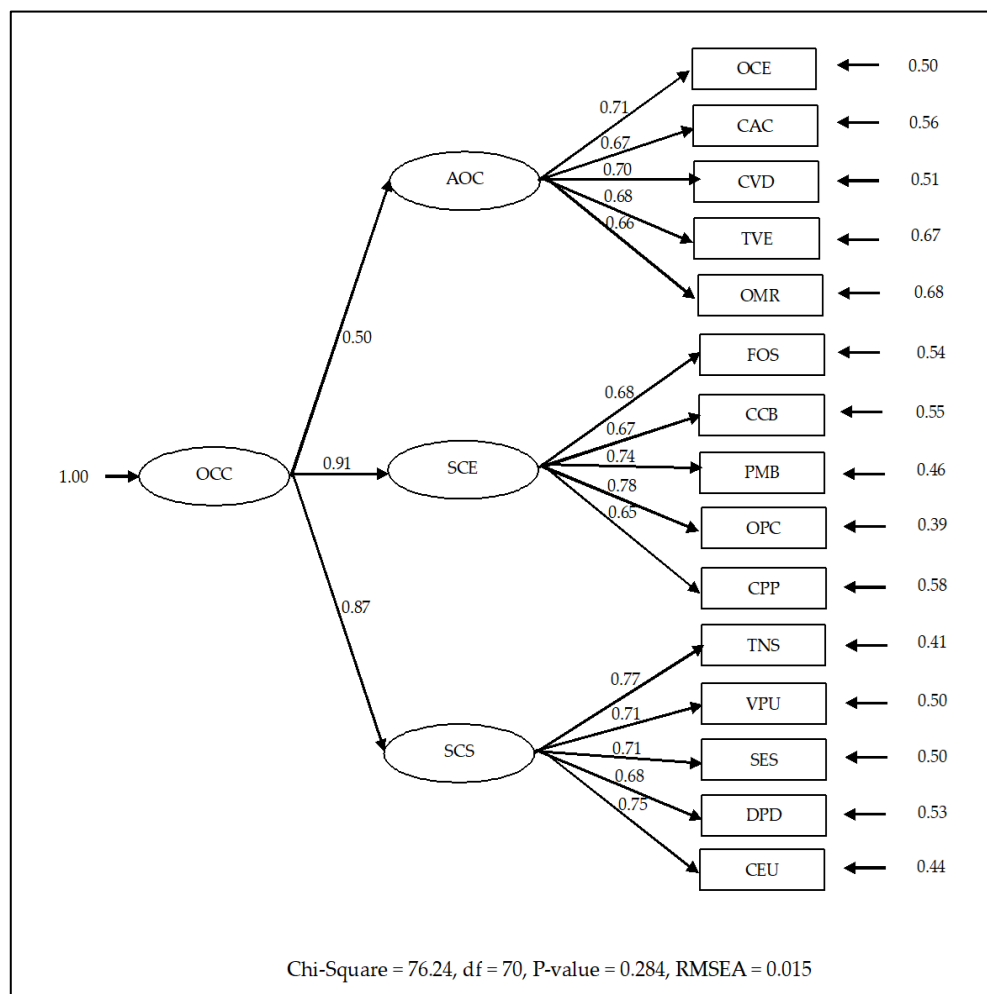


Figure 2. Second order CFA model of the online counseling competences for secondary school advisory-teachers

4. DISCUSSION

The results of this research provide essential insights into the core competencies required for effective online counseling among secondary school advisory teachers in Thailand. The results from CFA confirmed the three-dimensional structure of online counseling competencies: AOC, SCE, and SCS. These components align with global trends in digital counseling and underscore the growing importance of equipping advisory teachers with the necessary skills and ethical foundations to provide quality support in virtual environments.

AOC is essential in today's rapidly evolving digital landscape. The importance of teachers becoming adept with digital tools and platforms cannot be emphasized enough [37]. This competency enables advisory teachers to effectively engage students through various online mediums, a skill that has become increasingly vital in the wake of the pandemic, as online counseling has become a standard practice [38]. Mastering the ability to creatively adapt to online environments extends beyond mere technical skills; it also involves understanding how to uphold the quality of counseling in a virtual setting [39]. Teachers must be prepared to meet diverse student needs through innovative strategies that go beyond the limitations of traditional face-to-face counseling [30], [40]. Strengthening this proficiency is crucial for ensuring that advisory teachers can provide comprehensive support to students, helping them navigate their challenges in a digital world.

SCE serves as the essential framework for establishing trust and effectiveness in online counseling. While ethical principles are crucial to all counseling practices, the shift to online environments presents specific challenges that must be addressed [41]. Educators are responsible for ensuring strict confidentiality, establishing clear boundaries for digital interactions, and safeguarding student data. In an era marked by frequent digital breaches, adhering to these ethical standards is vital to protect students' well-being and maintain the integrity of the counseling relationship [42]. Emphasizing ethical practices goes beyond mere compliance with the standards set by professional organizations such as the NBCC and ACA; it involves fostering a safe environment where students feel secure and supported [43]. Continuous professional development in this area is essential, as the ethical landscape of digital counseling evolves in tandem with advancements in technology [7]. The significance of maintaining confidentiality, setting boundaries, and safeguarding student data privacy is underscored by the increasing cybersecurity threats and the pervasive digital engagement among youth [44]. These findings underscore the urgent need for training programs that specifically address the unique ethical challenges of online counseling.

SCS are indispensable for the effective delivery of online counseling services. A robust digital infrastructure ensures that counseling sessions are conducted on secure platforms, thereby protecting sensitive student information from unauthorized access and potential cyber threats [45], [46]. Teachers must be able to utilize secure platforms, interpret digital assessments, and implement tools that support evidence-based interventions [47]. This study reinforces the idea that a secure and well-integrated technological framework is not just a convenience but a necessity for safe and effective counseling. This competency is not only about having the right tools but also about integrating these tools into a cohesive system that supports the counseling process. Teachers must be knowledgeable about digital security protocols and be able to utilize user-friendly interfaces that ensure both accessibility and security [32]. The development of these systems must be ongoing, with regular updates to address emerging threats and to incorporate new technologies that enhance the counseling experience.

The interactions between these competencies suggest that strengthening one area can positively influence others. For instance, improving technological competency can enhance ethical practices by enabling the use of secure technology, thus ensuring that all aspects of online counseling are conducted safely and effectively [36]. This interdependence underscores the importance of a holistic approach to developing these competencies, where continuous improvement across all areas is emphasized.

The collective findings indicate that the development of a comprehensive competency model can significantly enhance the readiness of advisory teachers in providing online counseling. This model can serve as a foundational tool for designing professional development programs, establishing certification standards, and informing policy decisions to ensure safe and effective counseling services within educational institutions. For policymakers, these insights underscore the importance of investing in extensive and ongoing training initiatives that encompass all facets of online counseling. Such programs should not be viewed as one-time events but rather as cyclical opportunities that allow educators to continually refine their information technology (IT) skills, ethical practices, and ability to operate within secure digital environments. For educators, the study's conclusions should inform the creation of curricula and professional development programs that integrate practical, real-world experiences, enabling teachers to cultivate these competencies in a meaningful and contextually relevant manner.

4.1. Implications and future directions

This study presents a validated framework for online counseling competencies that can guide national training standards and educational policies in Thailand. Implementing this model has the potential to enhance the quality of student support services, particularly in rural and underserved areas where access to in-person counseling is limited. Future research should investigate the longitudinal development of these competencies and assess their effectiveness in improving student outcomes. Furthermore, integrating these competencies into teacher education curricula and providing regular digital counseling workshops could promote ongoing growth in expertise within the field.

4.2. Limitations

The present research has some limitations worth discussing. Firstly, the sample was drawn from secondary school advisory teachers in the Northeastern region of Thailand only, limiting the study's generalizability to the remainder of advisory teachers in Thailand. This restricts the transferability of the study results to other parts of Thailand with different social cultures. Secondly, the study used self-administered questionnaires, which may be skewed by common method variance, socially desirable responding, or poor self-accuracy. Additionally, the research methodology is cross-sectional and thus provides information that reflects the situation at a specific moment in time but is not sensitive to changes over time. Future investigations into these competencies should employ longitudinal research to assess the development of competencies over time and use a sample that more appropriately represents the population.

5. CONCLUSION

This study highlights the need to enhance the online counseling competencies of secondary school advisory teachers in Thailand. The research emphasizes components such as AOC, SCE, and SCS, which will facilitate improvements in the status of digital counseling services. The results underscore the importance of targeted training and continuous professional development initiatives to facilitate competent, ethical, and secure online counseling. The findings of this research will be useful for policymakers and teachers who strive to enhance support systems for students in the context of digital learning experiences. Future studies should consider using a longitudinal design to assess how these competencies evolve over time and expand the study to include different regions of Thailand. Furthermore, comparative studies across countries could offer global perspectives on best practices in online counseling training and system implementation.

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AUTHOR CONTRIBUTIONS STATEMENT

This journal uses the Contributor Roles Taxonomy (CRediT) to recognize individual author contributions, reduce authorship disputes, and facilitate collaboration.

Name of Author	C	M	So	Va	Fo	I	R	D	O	E	Vi	Su	P	Fu
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Choompunuch														
Dussadee Lebkhao	✓	✓		✓		✓	✓		✓	✓				
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C : Conceptualization

M : Methodology

So : Software

Va : Validation

Fo : Formal analysis

I : Investigation

R : Resources

D : Data Curation

O : Writing - Original Draft

E : Writing - Review & Editing

Vi : Visualization

Su : Supervision

P : Project administration

Fu : Funding acquisition

CONFLICT OF INTEREST STATEMENT

Authors state no conflict of interest.

INFORMED CONSENT

We have obtained informed consent from all individuals included in this study.

ETHICAL APPROVAL

The research related to human use has been complied with all the relevant national regulations and institutional policies in accordance with the tenets of the Helsinki Declaration and has been approved by the Institutional Review Board of Mahasarakham University (protocol code 284-198/2024 and dated 1 May 2024).

DATA AVAILABILITY

The data that support the findings of this study are available on request from the corresponding author, [DL]. The data, which contain information that could compromise the privacy of research participants, are not publicly available due to certain restrictions.

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