Higher Education Studies; Vol. 15, No. 2; 2025
ISSN 1925-4741 E-ISSN 1925-475X
Published by Canadian Center of Science and Education

Development of a Training Curriculum on Social Engineer Competency Based on the 5C Model to Enhance Problem-Solving and Adaptability Skills for Students at Surat Thani Rajabhat University and Residents of Khun Thale Subdistrict, Mueang Surat Thani, Thailand

Anchalee Sangarwut[1] & Meena Polsuwan[1]

[1] Faculty of Education, Suratthani Rajabhat University, Thailand

Correspondence: Meena Polsuwan, Faculty of Education, Suratthani Rajabhat University, Suratthani 84100, Thailand. E-mail: menu.som.meena@gmail.com

Received: March 14, 2025 Accepted: April 19, 2025 Online Published: April 22, 2025

doi:10.5539/hes.v15n2p340 URL: https://doi.org/10.5539/hes.v15n2p340

Abstract

The purposes of the current study were to examine the 5C social engineering model-based training program on Surat Thani Rajabhat University students and Khun Thale Subdistrict residents' problem solving and adaptability and to examine the participants' satisfaction learning with the 5C social engineering model-based training program. A training program was designed and implemented to enhance these skills among 150 students from Surat Thani Rajabhat University and local residents of Khun Thale Subdistrict, Mueang District, Surat Thani Province. The program focused on fostering collaborative learning, interdisciplinary engagement, and innovative problem-solving within a community-based context. The results demonstrated that participants significantly improved their problem-solving and adaptability skills, reinforcing the effectiveness of the 5C Model in cultivating social engineering competencies. The study also highlights the model's potential for area-based community development, where educational institutions play an active role in addressing local challenges. These findings suggest that the 5C Model can inform university policies aimed at regional development and sustainable growth through socially engaged learning approaches.

Keywords: community-based learning, 5C model, problem-solving skills, adaptability skills

1. Introduction

Problem-solving and adaptability skills are qualifications leading to success for both university students and community members in the responsible areas of the campus (Mahanal et al., 2022; Rusmin et al., 2024). To illustrate, the use of these skills enables individuals to respond effectively to challenges which mean they can make informed decisions and navigate complex social and economic environments (Adeoye & Jimoh, 2023). For university students, academic and professional careers, and their potential to contribute meaningfully to society relies on the success of Problem-solving and adaptability skill development (Güngör & Baysal, 2024). Likewise, for community members, these skills help in overcoming local challenges, improving livelihoods, and fostering sustainable development (Frank & Smith, 1999).

One of the important roles of universities is to provide academic services that are related to real-world applications (Morley & Jamil, 2021). To complete this mission, engaging students in community-based activities through collaborative initiatives would bring about practical experience in problem-solving while actively contributing to community development (Johnston, 2023). To be specific, social projects, service-learning programs, and local development initiatives allow students to apply their theoretical knowledge to practical situations which could strengthen their adaptability and critical thinking (Crawley & Crawley, 2023). At the same time, communities benefit from fresh perspectives, innovative solutions, and university resources that address local issues.

Regarding the development of problem-solving and adaptability skills, a certain number of students might struggle to apply their academic knowledge the practical situations throughout their path in higher education (Netwong, 2018). Lack of practical experience, structured learning environments, and opportunities to deal with

real social issues could obstruct their learning. For community members particularly in rural areas who often face difficulties in adapting to social and economic changes, the issues of accessing resources, education, and technological advancements could make it difficult for them to acquire the skills (Forsyth, 2013). These difficulties become a burden for the institution to provide an effective solution to the situation.

Since strengthening collaboration between higher education institutions and local communities become a goal for sustainable development, integrating experiential learning approaches, such as project-based learning, service-learning programs, and interdisciplinary problem-solving initiatives would be a crucial part for developing bachelors with hands-on experiences and community members who actively participate in their own development (Cherry & Shefner, 2004; Medved & Ursic, 2021; Strier, 2011). This learning ecosystem can develop the skills necessary to navigate an increasingly complex and dynamic world.

In this attempt, social engineering has emerged as a multidisciplinary approach that integrates knowledge from various fields to enhance problem-solving and adaptability in both students and local communities. According to Isaro (2022), the process of developing social engineering competencies in students follows a multidisciplinary active learning model, which emphasizes hands-on learning and practical application. The author used the term "Social Lab-Based learning" to the describe the processes to use community development as a foundation for real-world problem-solving. In this learning approach students are encouraged to learn in area-based problem solving with guidance from university faculty across disciplines and collaboration with local wisdom keepers. They are also shaped into critical thinkers, effective communicators, coordinators, and innovators who can contribute meaningfully to social development.

The principles of social engineering could be explained with Roscoe Pound's Social Engineering Theory (1921), where law is viewed as a tool to balance competing interests in society to achieve justice and social stability. Pound argued that legal systems should function similarly to engineering processes—designing solutions that harmonize individual interests, public interests, and social interests while minimizing societal friction. His perspective emphasized that laws must be stable yet adaptable to changing societal needs, ensuring that they effectively address contemporary challenges. Just as Pound's legal framework sought to mediate conflicts and create balanced social structures, social engineering in education equips students with the skills to analyze community issues, coordinate with stakeholders, and develop sustainable solutions. Social engineering becomes not just a theoretical construct but a practical approach to equipping individuals with the competencies needed to drive meaningful social change.

In the context of education and community development, this concept is reflected in models of the 5C Social Engineer Model. The Model serves as a structured approach to developing social engineering competencies as it focuses on transforming theoretical knowledge into practical skills through experiential learning (Rattanaprom, 2022). The process begins with an introductory phase, where students grasp the fundamental skills and test them in controlled environments. These initial experiences lay the groundwork for applying their knowledge in real community settings. The model drives this transformation through five core activities: Social Engineer Creation (C1) - developing foundational knowledge and understanding of social engineering concepts among students, Social Engineer Collection (C2) - gathering data and insights about community issues through research and fieldwork, social Engineer Congregation (C3) - Analyzing and integrating collected information to generate innovative solutions, Social Engineer Collaboration (C4) - engaging with universities, experts, and community members to implement projects collaboratively, and Social Engineer Corporation (C5) - Creating sustainable innovations and long-term solutions that benefit the community.

Several studies have explored the role of social engineering in local development, demonstrating its effectiveness in various parts of Thailand. Phiwphun (2022) developed a social engineering instruction program aimed at creating area-based development innovations in Khao Kho District. The study indicates that the program was successful in increasing both students' capability to deal with social problems and area of Khao Kho which is one of the famous winter destinations of Thai tourism. Similarly, Sakulthai (2024) signified the role of higher education institutions in bridging the gap between academia and real-world problem-solving. In various part of local development, the principle of social engineering was utilize to teach academic knowledge to students via the local problem solving. Furthermore, Sangarwut and Hemmanee (2022) analyzed the implementation of social engineer skill development policies through a specific case study of the SRU Youth Project to Build a Nation, and it revealed that structured training programs enable young individuals to develop leadership, adaptability, and problem-solving skills. In Sarayan et al. (2025), who investigated how social engineering processes were used to develop innovations and drive creative communities in Phetchaburi and Prachuap Khiri Khan Provinces. Their findings demonstrated that integrating social engineering into education and local initiatives enhances both student competencies and community resilience. By fostering collaboration between universities, local leaders,

and residents, the study showed how social engineering principles can be leveraged to create innovative solutions tailored to specific community needs.

Therefore, social engineering has proven to be an effective approach for community-based learning, enabling students to engage in real-world problem-solving, collaborate with diverse stakeholders, and apply interdisciplinary knowledge to address local challenges. Given its impact, the current study implemented the 5C Model to develop students and residents' problem solving and adaptability skills as social engineer competencies in Khun Thale Subdistrict, Mueang District, Surat Thani Province. The purposes of the current study were to examine the 5C social engineering model-based training program on Surat Thani Rajabhat University students and Khun Thale Subdistrict residents' problem solving and adaptability and to examine the participants' satisfaction learning with the 5C social engineering model-based training program.

2. Methodology

2.1 Participants

The study included 150 participants from Surat Thani Rajabhat University and residents of Khun Thale Subdistrict, Muang District, Surat Thani Province, selected through purposive sampling. For the demographic information of the participants, in terms of gender distribution, 42 participants (28.00%) were male, while 108 participants (72.00%) were female. Regarding participant status, the majority were students (130 participants, 86.67%), while 20 participants (13.33%) were local residents.

In terms of educational background, most participants held a bachelor's degree (104 participants, 69.33%), followed by those with a master's degree (30 participants, 20.00%). A smaller proportion had primary education (8 participants, 5.33%), vocational/technical education (5 participants, 3.33%), or secondary education (3 participants, 2.00%), while none held a doctoral degree (0.00%). Occupationally, students formed the largest group (100 participants, 66.67%), followed by teachers (23 participants, 15.33%), farmers (9 participants, 6.00%), government employees (8 participants, 5.33%), contract workers (7 participants, 4.67%), and merchants (3 participants, 2.00%).

Regarding age distribution, the majority of participants were between 16-25 years old (113 participants, 75.33%), followed by those aged 26-35 years (17 participants, 11.33%), 36-45 years (13 participants, 8.67%), 46-55 years (5 participants, 3.33%), and 56 years and above (2 participants, 1.33%).

2.2 Instruments

2.2.1 5C social Engineering Model-based Training Program

The training program was designed using the 5C principle to enhance problems solving and adaptability skills. The content of the program include Social Engineer Creation (C1) - developing foundational knowledge and understanding of social engineering concepts among students, Social Engineer Collection (C2) - gathering data and insights about community issues through research and fieldwork, social Engineer Congregation (C3) - Analyzing and integrating collected information to generate innovative solutions, Social Engineer Collaboration (C4) - engaging with universities, experts, and community members to implement projects collaboratively, and Social Engineer Corporation (C5) - Creating sustainable innovations and long-term solutions that benefit the community. There are two parts of the training program. At the end of each program, the participants' problem-solving and adaptability skills were assessed. The training program was developed throughout the process of a pilot study with 30 participants. It was found that the effectiveness of the training program passed the criteria of 80/80, and the effectiveness index of the program passed the criteria of 0.5

2.2.2 Problem-solving and Adaptability Skill Assessment

The assessment was developed on a 5-rating scale assessing the participants' problem-solving and adaptability skills. There are 6 evaluating items for problem solving skills and 4 items for adaptability skills. The assessment was proved to be with content validity (IOC =0.5-1.0).

2.2.3 5C Social Engineer Competency Assessment

The assessment was developed on a 5-rating scale assessing the participants' social engineer competencies following the 5C principle. The aspects of evaluation include 5 items for Social Engineer Creation (C1), 4 items for Social Engineer Collection (C2), 3 items for Social Engineer Congregation (C3), 4 items for Social Engineer Collaboration (C4), and 3 items for Social Engineer Corporation (C5). The assessment was proved to be with content validity (IOC =0.5-1.0).

2.2.4 Participants' Satisfaction Assessment

The assessment was developed on a 5-rating scale assessing the participants' satisfaction with 5C social engineering model-based training program. The aspects of evaluation include content (n=5), activities (n=5), mentors (n=5), and evaluation and assessment (n =5). The assessment was proved to be with content validity (IOC =0.5-1.0).

2.3 Data Collection and Data Analysis

The participants had taken assessment form for problem-solving and adaptability skills and social engineer competencies before the training program started. The training program covered 3 days to complete all activities. The participants took the assessments as well as satisfaction assessments again after the training ended. The data were analyzed using effectiveness (E1/E2), Effectiveness index (E.I), mean score, and standard deviation.

3. Results

Table 1. The effectiveness of the training program at the developmental process

N 30	**Pretest (10)**	**Training program part 1 (10)**	**Training program part 2 (10)**	**Sum (20)**	**Posttest (10)**
Sum	126	256	275	531	263
$\bar{x}$	4.20	8.53	9.17	17.70	8.77
%				$E_1 = 88.50$	$E_2 = 87.67$
E.I. = 0.79					

Table1 presents the pre-training, mid-training, and post-training scores using the Social Engineer Competency Training Curriculum based on the 5C Model to enhance problem-solving and adaptability skills. Effectiveness of the training program (E1/E2) was 88.50/87.67, reaching the predetermined criterion of 80/80. Additionally, the effectiveness index (E.I.) was 0.79, which is higher than the predetermined criterion of 0.50.

Table 2. The comparison between the participants' problem-solving and adaptability skills before and after the training program

No.	**Evaluation items**	**Pre-assessment** ($\bar{x}$)	**Post- assessment** ($\bar{x}$)
	Problem-solving skills	$\bar{x}$	$\bar{x}$
1.	**Identifying the problem**	2.99	4.59
2.	**Gathering information about the problem**	2.88	4.55
3.	**Designing problem-solving methods**	2.83	4.29
4.	**Implementing the solution**	2.88	4.27
5.	**Evaluating and refining the solution or product**	2.85	4.21
6.	**Presenting the solution, results, or product**	2.92	4.23
	Adaptability skills		
7.	**Adapting to working with others**	3.17	4.61
8.	**Fostering unity through compromise**	3.17	4.64
9.	**Effective communication**	2.89	4.57
10.	**Embracing diversity**	3.47	4.78

Table 2 presents the analysis results, showing that participants' problem-solving and adaptability skills improved after completing the 5C social engineering model-based training program. In detail, self-assessment scores increased across all areas compared to pre-training levels. The highest improvement was in embracing diversity, with an average post-training score of 4.78, up from 3.47. In terms of problem-solving skills, identifying the problem showed a notable increase (4.59, up from 2.99). Overall, the findings indicate that the training program enhanced participants' problem-solving and adaptability skills, with the most substantial progress observed in areas related to collaboration, communication, and diversity acceptance.

Table 3. The comparison between the participants' 5C social engineering competencies before and after the training program

No.	Evaluation items	Pre-assessment ($\bar{x}$)	Post- assessment ($\bar{x}$)
Engineer Creation (C1)			
1.	**Distinguishing between facts and feelings**	3.14	4.70
2.	**Identifying causes and effects**	2.94	4.67
3.	**Questioning skills: What, How, and Why**	2.98	4.51
4.	**Understanding and respecting others' ways of life**	3.14	4.76
5.	**Generating knowledge/innovation from information: Imagination, storytelling, and hypothesis formation**	2.96	4.30
Overall		3.03	4.59
Social Engineer Collection (C2)			
6.	**Observation skills**: Distinguishing between facts and feelings	3.14	4.59
7.	**Questioning skills to gather information**	2.97	4.52
8.	**Deep listening and dialogue**	3.01	4.43
9.	**Field note recording**: Summarizing, storytelling, academic writing, still photography, and video recording	3.18	4.37
Overall		3.08	4.48
Social Engineer Congregation (C3)			
10.	**Knowledge exchange process**	3.05	4.43
11.	**Reflection on observed data**	3.00	4.45
12.	**Diverse transdisciplinary learning processes**	3.02	4.41
Overall		3.02	4.43
Social Engineer Collaboration (C4)			
13.	**Community potential analysis**	3.05	4.56
14.	**Knowledge exchange process**	3.09	4.49
15.	**Communication skills for conveying knowledge derived from brainstorming and integrated problem-solving**	2.97	4.59
16.	**Area-based collaboration skills**: Coordinating roles and responsibilities (Function) and driving participation as a key mechanism (Participation)	3.07	4.62
Overall		3.04	4.57
Social Engineer Corporation (C5			
17.	**Ensuring sustainable problem-solving in local areas based on community data**	3.15	4.56
18.	**Creative collaboration**	3.20	4.62
19.	**Coordination skills for mobilizing resources and collective efforts to drive innovation**	3.27	4.65
Overall		3.03	4.61

Table 3 presents the analysis results, showing that participants' social engineering competency skills improved after completing the 5C social engineering model-based training program. Self-assessment scores increased across all skill areas compared to pre-training levels. The highest improvement was in co-creating innovations for sustainable community development, with an average post-training score of 4.61, up from 3.03. Other areas also showed significant improvement: collaborating with various academic disciplines and communities (4.57, up from 3.04), collecting and analyzing community data (4.48, up from 3.08), and facilitating knowledge integration through brainstorming (4.43, up from 3.02). Overall, the findings indicate that the training program effectively enhanced participants' skills in social innovation, interdisciplinary collaboration, data collection, and integrated problem-solving, contributing to sustainable community development.

Table 4. The participants' satisfaction with the 5C social engineering model-based training program

No.	Evaluation Items	$\bar{x}$	S.D.	Level of satisfaction
Content				
1.	The training course content stimulates your learning and is suitable for learning management activities.	4.69	0.46	Very high
2.	The training course content is engaging, up-to-date, and relevant to current events.	4.81	0.39	Very high
3.	The course content is clear, concise, and easy to understand.	4.65	0.48	Very high
4.	The course content enhances problem-solving and adaptability skills.	4.79	0.41	Very high
5.	Participants can apply the course content to daily life.	4.77	0.42	Very high
Overall		**4.74**	**0.43**	**Very high**
Activities				
6.	The training activities enhance problem-solving and adaptability skills.	4.85	0.35	Very high
7.	The training activities are diverse and align with your interests.	4.73	0.44	Very high
8.	The training activities encourage participants to think critically and engage in hands-on practice.	4.91	0.29	Very high
9.	The training activities are appropriately scheduled in terms of date and time.	4.79	0.41	Very high
10.	The training activities incorporate new knowledge for group discussions and idea exchange.	4.83	0.50	Very high
Overall		**4.82**	**0.40**	**Very high**
Mentors				
11.	The mentors have good personalities, are credible, and approachable, creating a conducive learning environment.	4.91	0.29	Very high
12.	The mentors encourage participants to express their opinions and engage in knowledge exchange.	4.85	0.36	Very high
13.	The mentors provide training materials that align with the content, making it clear, concise, and easy to understand.	4.91	0.28	Very high
14.	The mentors answer questions and explain concepts clearly and comprehensibly.	4.79	0.40	Very high
15.	The mentors effectively convey knowledge in a clear and easily understandable manner.	4.85	0.37	Very high
Overall		**4.86**	**0.34**	**Very high**
Evaluation and assessment				
16.	Participation in summarizing, discussing outcomes, and evaluating learning results.	4.58	0.49	Very high
17.	The assessment and evaluation methods comprehensively align with the learning objectives.	4.48	0.50	High
18.	The assessment criteria are appropriate and easy to understand.	4.55	0.50	Very high
19.	The assessment methods reflect the ability to develop problem-solving and adaptability skills.	4.68	0.47	Very high
20.	The evaluation tools are appropriate.	4.67	0.58	Very high
Overall		**4.59**	**0.51**	**Very high**

Table 4 presents the analysis of participant satisfaction with the 5C social engineering model-based training program. The results indicate that overall satisfaction was at the highest level. Among the evaluated aspects, the mentors received the highest average satisfaction score ($\bar{x}$ = 4.86, S.D. = 0.34). This was followed by training activities ($\bar{x}$ = 4.82, S.D. = 0.40), the training content ($\bar{x}$ = 4.74, S.D. = 0.43), and assessment and evaluation ($\bar{x}$ = 4.59, S.D. = 0.51).

4. Discussion

The findings of this study indicate that the training program significantly enhanced participants' problem-solving and adaptability skills. It seems that activities in 5C Social Engineer Model helped participants develop a systematic approach to identifying challenges, analyzing potential solutions, and implementing effective strategies. This improvement suggests active and structured training which contributes to cognitive and practical skills that are necessary for solving problems and being adaptive in complex situations (van Hout-Wolters et al.,

2000). The increase in these competencies also signify the effectiveness of experiential learning and structured problem-solving frameworks in enhancing adaptability in real-world contexts (Faust & Paulson, 1998).

Furthermore, the results showed that the 5C Social Engineer Model contributed to the development of social engineering competencies. Considering the component of the model, we could assume that promoting interdisciplinary collaboration, data collection, and innovative solution-building played a crucial role. To demonstrate, the model stimulated participants to work collectively, integrate multiple perspectives, and utilize diverse resources in addressing community issues. This underscores the value of integrating social engineering principles into educational and professional training to prepare individuals for real-world problem-solving (Rattanaprom, 2022).

To broaden the applicability of the 5C Model, future implementations could consider adjustments for varying educational levels, cultural contexts, and community structures. For example, activities could be simplified or scaffolded for younger learners, while community engagement strategies might be adapted to align with cultural norms or communication styles in different regions. Additionally, for urban and rural communities, the nature of collaboration and types of issues addressed may differ, requiring a more context-sensitive design. These adaptations would not only enhance the model's flexibility but also ensure its effectiveness across diverse educational and community settings.

In addition, participant satisfaction as suggested by the results of the study further support the feasibility of the training program. The high levels of engagement, positive feedback on trainers, and appreciation for the structure of learning activities suggest that the program was well-designed to meet the learners' needs. Considering the activities that focused on interactive and hands-on problem-solving, practical content, and effective assessment, it could be assumed that interaction, collaboration, and applied learning are the crucial component leading to participants' satisfaction learning experiences in training program.

Beyond individual skill development, the study highlights the broader impact of community-based learning, area-based learning, and social engineering in fostering mutual development between students and community members. The integration of real-world community issues into the learning process provided practical experience that benefited both groups, creating a dynamic exchange of knowledge and problem-solving strategies. This approach not only supports skill development among participants but also strengthens community resilience and fosters sustainable, locally driven solutions. These findings suggest that incorporating community engagement and real-world applications into education is a powerful strategy for both individual and collective growth. The results of the study went in line with previous examination (Phiwphun, 2022; Sakulthai, 2024; Sangarwut & Hemmanee, 2022; Sarayan et al., 2025) s on social engineering as a sustainable social development approach in the attempt to letting students develop skills and abilities while solving problems of community at the same time.

5. Conclusion

This study employed the 5C Model to develop problem-solving and adaptability skills as core competencies of a social engineer—a role that reflects the university's contribution to social development by balancing individual, public, and societal interests. A training program was implemented to 150 students and local community members through structured learning activities. The results indicate that the training program led to participants improvement in problem-solving and adaptability skills. It also signifies learning satisfaction throughout the program.

It can be implicated that the 5C Model can play a significant role in area-based community development as it was found to encourage collaborative learning, interdisciplinary engagement, and social innovation. This makes it a valuable framework for universities aiming to contribute to local and sustainable growth. Additionally, these results can inform policymaking in higher education institutions by reinforcing the role of universities in regional development and promoting socially engaged learning models.

However, small sample sizes, especially for community members, could be a major flaw in research design. Additionally, the lack of qualitative data collection could hinder the illustration of participants' experiences and perspectives throughout the learning program. For further studies, expanding the sample size, the addition of qualitative methods, and exploration of the model long-term impact are recommended. Further studies could also examine how the 5C Model can be adapted for different contexts to enhance its applicability in various educational and social development settings.

Acknowledgments

The researcher would like to express sincere gratitude to Surat Thani Rajabhat University for the support and

opportunity to carry out this study. Special thanks are also extended to the Khun Thale community for their kind cooperation, valuable insights, and active participation, which greatly contributed to the success of this research.

Authors contributions

Anchalee Sangarwut was responsible for the overall study design, supervision of the research process, and critical revision of the manuscript. Meena Polsuwan was responsible for data collection, field coordination, and initial data analysis. Both authors contributed to the interpretation of the findings and the final approval of the manuscript. The authors declare that they contributed equally to the study and share joint responsibility for the content of the work.

Funding

This work was supported by Surat Thani Rajabhat University.

Competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Informed consent

Obtained.

Ethics approval

The Publication Ethics Committee of the Canadian Center of Science and Education.

The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

Provenance and peer review

Not commissioned; externally double-blind peer reviewed.

Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

References

Adeoye, M., & Jimoh, A. (2023). Problem-Solving Skills Among 21st-Century Learners Toward Creativity and Innovation Ideas. *Thinking Skills and Creativity Journal, 6*(1), 52-58. https://doi.org/10.23887/tscj.v6i1.62708

Cherry, D. J., & Shefner, J. (2004). Addressing Barriers to University-Community Collaboration. *Journal of Community Practice, 12*(3-4), 219-233. https://doi.org/10.1300/J125v12n03_13

Crawley, A. A., & Crawley, W. (2023). Intergenerational, Community-Based Learning and Exercise Science Student Perceptions of Classroom Community. *Journal of Experiential Education, 46*(3), 304-318. https://doi.org/10.1177/10538259221146535

Faust, J. L., & Paulson, D. R. (1998). Active Learning in the College Classroom. *Journal on Excellence in College Teaching, 9*(2), 3-24.

Forsyth, T. (2013). Community-based adaptation: A review of past and future challenges. *WIREs Climate Change, 4*(5), 439-446. https://doi.org/10.1002/wcc.231

Frank, F., & Smith, A. (1999). *The community development handbook*. Human Resources Development Canada (HRDC).

Güngör, C., & Baysal, E. A. (2024). The Impact of Undergraduate Students' Thinking Styles on Problem-Solving Skills. *İnsan ve Toplum Bilimleri Araştırmaları Dergisi, 13*(2), Article 2.

https://doi.org/10.15869/itobiad.1299119

Isaro, N. (2022). *Student Development Handbook for National Development*. Amarin Printing Publishing.

Johnston, J. B. (2023). Chapter 25: Community-based learning: Benefits of moving beyond the classroom. In S. Cabrera & S. Sweet (Eds.), *Handbook of Teaching and Learning in Sociology* (pp. 330-340). Edward Elgar. https://doi.org/10.4337/9781800374386.00036

Mahanal, S., Zubaidah, S., Setiawan, D., Maghfiroh, H., & Muhaimin, F. G. (2022). Empowering College Students' Problem-Solving Skills through RICOSRE. *Education Sciences, 12*(3), Article 3. https://doi.org/10.3390/educsci12030196

Medved, P., & Ursic, M. (2021). The Benefits of University Collaboration Within University-Community Partnerships in Europe. *Journal of Higher Education Outreach and Engagement, 25*(2), Article 2. https://openjournals.libs.uga.edu/jheoe/article/view/2073

Morley, D. A., & Jamil, M. G. (2021). Introduction: Real World Learning—Recalibrating the Higher Education Response Towards Application to Lifelong Learning and Diverse Career Paths. In D. A. Morley & M. G. Jamil (Eds.), *Applied Pedagogies for Higher Education: Real World Learning and Innovation across the Curriculum* (pp. 1-17). Springer International Publishing. https://doi.org/10.1007/978-3-030-46951-1_1

Netwong, T. (2018). Development of Problem Solving Skills by Integration Learning Following STEM Education for Higher Education. *International Journal of Information and Education Technology, 8*(9), 639-643. https://doi.org/10.18178/ijiet.2018.8.9.1114

Phiwphun, K. (2022). Social engineers instruction program to invent the area-based development innovation in Khao Kho district. *Journal of MCU Social Development, 7*(3), 148-164.

Rattanaprom, W. (2022). *Research Report on the Chan Ka Por Classroom Project for Developing Social Engineering Skills to Promote Sustainable Local Community Development*. Surat Thani Rajabhat University.

Roscoe, P. (1921). *The Spirit of The Common Law*. Francistown Publisher.

Rusmin, L., Misrahayu, Y., Pongpalilu, F., Radiansyah, R., & Dwiyanto, D. (2024). Critical Thinking and Problem-Solving Skills in the 21st Century. *Join: Journal of Social Science, 1*(5), Article 5. https://doi.org/10.59613/svhy3576

Sakulthai, C. (2024). Driving Local Development with Social Engineer Approaches by Rajabhat University Students. *Journal of Education and Learning Reviews, 1*(4), Article 4. https://doi.org/10.60027/jelr.2024.787

Sangarwut, P., & Hemmanee, B. (2022). Implementation of Social Engineer Skills Development Policy for Specific Case Studie of the SRU youth Project to Build a Nation. *Dhammathas Academic Journal, 22*(2), Article 2.

Sarayan, M., Wongrat, K., Klamsakul, S., & Raksara, K. (2025). Elevating Student Potential Through the SOCIAL Engineering Process to Develop Innovation and Drive Creative Communities in Phetchaburi and Prachuap Khiri Khan Provinces. *Social Sciences Research and Academic Journal, 20*(1), Article 1.

Strier, R. (2011). The construction of university-community partnerships: Entangled perspectives. *Higher Education, 62*(1), 81-97. https://doi.org/10.1007/s10734-010-9367-x

van Hout-Wolters, B., Simons, R.-J., & Volet, S. (2000). Active Learning: Self-directed Learning and Independent Work. In R.-J. Simons, J. van der Linden, & T. Duffy (Eds.), *New Learning* (pp. 21-36). Springer Netherlands. https://doi.org/10.1007/0-306-47614-2_2