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Factors Contributing to Genetic Counselors' Success as Facilitators in Role-Playing Workshops

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Background: Role-playing is a key learning method in genetic counseling education, with facilitators playing a crucial role. Although facilitator training exists in other fields, it lacks a structured framework in the context of genetic counseling. Identifying the factors contributing to facilitator success can improve the quality of education. This study aims to examine the key factors associated with successful experiences as genetic counseling facilitators.

Methods: An anonymous cross-sectional survey was conducted in September 2023 among 356 members of the Japanese Association of Certified Genetic Counselors.

Results: A total of 106 responses (29.7%) were collected, with 45 participants (42.4%) possessing facilitator experience. Logistic regression analysis identified prior learning experiences (OR = 10.02, 95% CI: 1.07-93.7) and confidence as a facilitator (OR = 25.94, 95% CI: 2.27-295.96) as significant factors for successful facilitation. Prior learning experiences correlated with observing inappropriate facilitation (OR = 6.39, 95% CI: 1.25-32.76). Confidence was linked to both skill improvement opportunities (OR = 14.30, 95% CI: 1.41-145.14) and inappropriate facilitation (OR = 9.65, 95% CI: 1.67-55.67).

Conclusion: Successful facilitator experiences were associated with prior learning and confidence. Inappropriate facilitation played an indirect role in facilitator success. Enhancing confidence through learning opportunities and exposure to facilitation challenges is crucial for facilitator development.

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Key words: facilitator, role-play, professional development, genetic counselors

Introduction

Medical education emphasizes not only the acquisition of knowledge but also the development of practical skills and attitudes[1]. In particular, educational methods closely aligned with practical experience are required to refine patient dialogue and decision-making abilities[2]. Role-play is especially effective in this context, as it allows learners to practice real-world interactions and develop empathy by adopting the patient's perspective[3–6]. Since a genetic counselor's job involves patient dialogue, role-play occupies a significant position in genetic counseling education[7]. A skilled facilitator is required to conduct role-play with high learning effectiveness[8]. In other medical professions, the importance of education in enhancing facilitator quality has been recognized[9], and guidelines for facilitator development and education are being implemented. However, systematic facilitation education has not yet been conducted for genetic counselors. In role-play education, which often occurs outside of regular work hours[10], many facilitators consider facilitating a burden[11]. Therefore, methods for sustaining educational passion must be considered when providing facilitator education.

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While mastery experiences are believed to not only maximize the effectiveness of education and training but also reduce the burden of work, it remains unclear how facilitators obtain these successful experiences[12]. This study hypothesizes that specific factors, such as personal characteristics and experiential attributes, contribute to facilitators' mastery experiences. Identifying the factors contributing to mastery experiences would enable the recognition of potential facilitator candidates likely to gain such experiences, thereby supporting facilitators in achieving success. Moreover, this could help design educational programs for facilitators based on scientific evidence. Conversely, facilitators who consider facilitation a burden may find it difficult to continue as facilitators over an extended period. Experience and knowledge are considered important competencies for facilitators, but are they truly essential competencies for genetic counselors?[13,14]

This study aims to analyze the factors related to successful experiences among facilitators, with the expectation that the findings will contribute to the development of more effective facilitator education programs tailored specifically for genetic counseling professionals. We conducted a survey targeting genetic counselors and examined the characteristics of genetic counselors who have been successful as facilitators.

Materials and Methods

1. Participants

This cross-sectional survey targeted genetic counselors who were members of the Japanese Association of Certified Genetic Counselors (JACGC). The survey included 356 genetic counselors who were members of the JACGC and residing in Japan in September 2023, when the survey was initiated. The questionnaire and survey request letters were sent to the participants via email through the JACGC. In the survey request letter, we stated that participation in the study would not result in any disadvantages for the participants. Informed consent for participation in the study was obtained from all participants. The survey period was September 20 to October 31, 2023. This study was approved by the Institutional Review Board of the Humanities and Social Science Research Ethics Committee of Ochanomizu University (No. 2023-65).

2. Contents of the Questionnaire

The questionnaire was developed based on previous studies and administered anonymously. It incorporated 21 items, including questions about participants' demographics (3 items), their experience as genetic counselors (5 items), and facilitation in role-play scenarios (13 items).

3. Data Analysis

The chi-square test was used to compare the groups with and without facilitation experience, and multivariate logistic regression analysis was employed for multivariate analysis. Considering the limited sample size of 45 participants, the multivariate analysis selected approximately five explanatory variables based on previous studies. Statistical analyses were performed using IBM SPSS Statistics version 28.0. Two-tailed tests were performed, and a p-value <0.05 was considered statistically significant.

Results

1. Participants

Responses were obtained from 150 (42.1%) participants. Those who did not answer all the items were excluded, resulting in a final analysis of 106 (29.7%) participants. Of the 106 participants, 45 had prior experience as facilitators. The backgrounds of these 106 participants are listed in **Table 1**. Facilitators were older (P = 0.02), had more years of experience since obtaining genetic counselor certification (P = 0.002), and had a higher participation rate in role-play than non-facilitators (P = 0.007).

2. Study Participants with Experience as Facilitators in Role-playing

The questionnaire results for the 45 facilitators are presented in **Table 2**. Thirty-seven participants (82.2%) responded that they did not possess sufficient knowledge of facilitation, and 42 (93.3%) indicated that they wanted to acquire facilitation skills. Notably, 24 participants (53.3%) had experience in learning facilitation, and only six (13.3%) had had the opportunity to improve their facilitation skills.

3. Factors Influencing Successful Experiences as a Facilitator

To examine the factors influencing facilitator success, we selected six explanatory variables that may be related to successful experiences based on previous studies. These variables were analyzed using forced-entry logistic regression analysis (**Table 3**). "Has learned about facilitators" (Odds ratio [OR] = 10.02, 95% confidence interval [CI]: 1.07-93.75) and "Has confidence in performing the role of a facilitator" (OR = 25.94, 95% CI: 2.27-295.96) were significantly correlated with successful experiences as a facilitator.

Table 1 Participant backgrounds

	ALL		Experienced		Inexperienced		*p*
	N	%	N	%	N	%	
Age							**0.02**
20-30	63	59.4	21	46.7	42	68.9	
>30	43	40.6	24	53.3	19	31.1	
Gender							0.14
Female	94	88.7	38	84.4	56	91.8	
Male	11	10.4	7	15.6	4	6.6	
Unanswered	1	0.9	0	0.0	1	1.6	
Years since obtaining the qualification							**0.002**
Less than 6 years	54	50.9	15	33.3	39	63.9	
7 years or more	52	49.1	30	66.7	22	36.1	
Nursing qualification							0.64
Yes	38	35.8	15	33.3	23	37.7	
No	68	64.2	30	66.7	38	62.3	
Place of employment							0.19
Medical institution	90	84.9	36	80.0	54	88.5	
Educational institution	10	9.4	8	17.8	2	3.3	
Company	5	4.7	1	2.2	4	6.6	
Others	1	0.9	0	0.0	1	1.6	
Area of expertise (Multiple answers allowed)							
Oncology	85	80.2	40	88.9	45	73.8	
Adult	73	68.9	35	77.8	38	62.3	
Perinatal	82	77.4	36	80.0	46	75.4	
Pediatric	73	68.9	35	77.8	38	62.3	
Other	4	3.8	3	6.7	1	1.6	
Participating in Role-playing							**0.007**
Yes	93	87.7	44	97.8	49	80.3	
No	13	12.3	1	2.2	12	19.7	
Participating within the last 3 years							0.20
Yes	56	52.8	27	60.0	29	47.5	
No	50	47.2	18	40.0	32	52.5	
Experience as a sub-facilitator							0.51
Yes	75	70.7	30	66.7	45	73.7	
No	31	29.3	15	33.3	16	26.3	

4. Factors Influencing Confidence as a Facilitator

To investigate the confidence-related factors that impact facilitator success, five explanatory variables were selected and analyzed using forced entry logistic regression. (**Table 4**). "Has opportunities to enhance skills as a facilitator" (OR = 14.30, 95% CI: 1.41-145.14) and "Has witnessed inappropriate behavior from a facilitator" (OR = 9.65, 95% CI: 1.67-55.67) were significantly correlated with confidence as a facilitator.

5. Factors Influencing the Experience of Study About Facilitation

To examine the factors related to the learning experience that influence the success of the facilitator, five explanatory variables were selected and examined using forced-entry logistic regression analysis (**Table 5**). "Has witnessed inappropriate behavior from a facilitator" (OR = 6.39, 95% CI: 1.25-32.76) was significantly correlated with the experience of study about facilitation.

Discussion

This study, conducted through a survey targeting genetic counselors, yielded three new insights. First, learning experiences related to facilitation and confidence as facilitators were significantly correlated with successful experiences. Second, opportunities to enhance facilitation skills and observe inappropriate facilitation were significantly correlated with confidence. Finally, inappropriate facilitation was significantly correlated with learning experiences.

Bandura[15] demonstrated that self-efficacy influences learning success and identified mastery experiences, vicarious experiences, verbal persuasion, and physiological

Table 2 Results of the questionnaire from 45 facilitators

Variables	N	%
Has learned about facilitators	24	53.3
Has sufficient knowledge of facilitation	8	17.3
Has opportunities to enhance skills as a facilitator	6	13.3
Has confidence in performing the role of a facilitator	14	31.1
Has had successful experiences as a facilitator	19	42.2
Has had experiences where it was felt worthwhile to act as a facilitator	37	82.2
Has had challenging experiences as a facilitator	37	82.2
Has expectations regarding the role of facilitator	37	82.2
Has witnessed inappropriate behavior for a facilitator	14	31.1
Has an ideal image of a facilitator to aspire to	15	33.3
Has a desire to learn facilitation skills	42	93.3

Table 3 Factors influencing successful facilitator experiences

Variables	B	Odds Ratio	95% CI	*p*
Has many years of experience*	–1.19	0.31	0.04-2.31	0.25
Has experience as a sub-facilitator	2.68	14.53	0.89-236.28	0.06
Has learned about facilitators	2.31	10.02	1.07-93.75	**0.04**
Has opportunities to enhance skills as a facilitator	1.74	5.71	0.28-117.01	0.26
Has confidence in performing the role of a facilitator	3.26	25.94	2.27-295.96	**0.01**
Has witnessed inappropriate behavior for a facilitator	1.06	2.90	0.29-28.83	0.36

*Definition of "many years of experience": A certified genetic counselor with more than seven years of experience.
CI: confidence interval

Table 4 Factors influencing facilitator confidence

Variables	B	Odds Ratio	95% CI	*p*
Has many years of experience*	1.09	2.97	0.56-15.69	0.20
Has opportunities to enhance skills as a facilitator	2.66	14.30	1.41-145.14	**0.02**
Has witnessed inappropriate behavior from-a facilitator	2.27	9.65	1.67-55.67	**0.01**
Has had challenging experiences as a facilitator	0.15	1.16	0.15-9.15	0.89
Has a desire to learn facilitation skills	–2.52	0.09	0.004-1.49	0.09

*Definition of "many years of experience": A certified genetic counselor with more than seven years of experience.
CI: confidence interval

Table 5 Factors influencing the study experience of facilitation

Variables	B	Odds Ratio	95% CI	*p*
Has many years of experience*	0.86	2.37	0.52-10.84	0.27
Has had experiences where it was felt worthwhile to act as a facilitator	0.61	1.83	0.26-13.11	0.55
Has expectations for facilitators	–2.39	0.09	0.008-1.000	0.050
Has witnessed inappropriate behavior from a facilitator	1.86	6.39	1.25-32.76	**0.03**
Has an ideal image of a facilitator to aspire to	0.02	1.17	0.24-5.64	0.84

*Definition of "many years of experience": A certified genetic counselor with more than seven years of experience.
CI: confidence interval

and emotional states as key factors in enhancing self-efficacy. We specifically focused on mastery experiences and investigated what contributed to them. The results demonstrate that confidence and learning experiences facilitate mastery experiences. The finding that learning about facilitation, rather than the length of professional experience as a genetic counselor, leads to success as a facilitator is truly intriguing. In nursing education, facilitators who receive appropriate training enhance their facilitation skills and improve learning outcomes[16]. In this study, although more than 90% of participants sought learning opportunities, only about 50% had access to them. Therefore, it is necessary to provide more learning opportunities in the future. When facilitators have confidence, role-play participants feel comfortable with their learning and can engage in higher-quality learning experiences[17]. Raj and Kumar[18] demonstrated that the effectiveness of education for parents of children with autism depends on the confidence gained through structured training. Self-efficacy theory[15] states that repeated practice is necessary for "mastery experiences," which are important for developing confidence, and research on mastery learning[19] shows that repeated practical experience greatly improves self-efficacy and skill retention. The finding that confidence, rather than the availability of opportunities to improve facilitation skills, leads to mastery experiences suggests that simply providing opportunities may not be sufficient; instead, offering repeated opportunities until facilitators gain confidence is necessary. As a recommended approach, facilitator training programs should incorporate structured, repeated practice with feedback, such as through role-plays and supervised sessions. These experiences can help participants build the confidence needed to develop mastery as facilitators.

Next, we analyzed the factors contributing to confidence, a key aspect in gaining mastery. The results revealed that the observation of inappropriate facilitation behaviors and "opportunities to enhance facilitation skills" were correlated with confidence. Since this study did not determine causality, it remains unclear whether inappropriate behavior by others enhanced confidence or whether having confidence resulted in a more critical evaluation of others. The results of this study suggest that reflecting on others' inappropriate behavior leads to self-reflection and the evaluation of one's own actions. However, consistently successful people tend to assess others more critically, which may influence their observed correlation with confidence[20]. To the best of our knowledge, no study has stated that observing others' failures directly enhances self-confidence. Observing others' behaviors, not just failures, may contribute to confidence. Students may lack confidence in the knowledge gained through self-directed learning[21]. Role-playing[22] and supervision[23] can help students build confidence. The results suggest that group learning is a useful tool. Based on these findings, facilitator training programs might benefit from incorporating opportunities to observe ineffective facilitation behaviors to stimulate reflection. To avoid undermining the confidence of those who exhibit such behaviors, examples should be anonymized or presented as scripted scenarios and discussed in a nonjudgmental, constructive manner.

It is natural and expected that opportunities to enhance skills as facilitators will increase confidence. However, confidence development is not automatic, and factors such as role ambiguity and low professional status can undermine confidence as an expert[24]. Additionally, lack of experience can sometimes lead to overconfidence, hindering adaptability[25]. Therefore, it is important to recognize that confidence has both positive and negative effects.

Finally, we analyzed what contributed to the experience of studying facilitation, which is a key factor in gaining mastery. The results demonstrate a significant association between the experience of studying facilitation and observing others' inappropriate behaviors. Observing others' inappropriate behaviors stimulates learning motivation; the same result was observed in this study, which specifically targeted genetic counselors. Rendell et al. (2010)[26] conducted a simulation-based study on social learning strategies, demonstrating that observing others' inappropriate behavior provides an opportunity to recognize the need for learning and reflect on one's actions. Hartmann et al. (2016)[27] found that observing examples of failure in student learning contexts helps prepare learners to engage more effectively in subsequent instruction[28]. Conversely, negative teacher attitudes may demotivate students[29]. The lack of a supportive and encouraging learning environment can hinder students' academic success because they may feel undervalued and unmotivated to participate in their education[29]. Thus, observing common mistakes can be educational, especially when followed by structured reflection. Facilitated group discussions or self-assessment activities that focus on specific behaviors, rather than individuals, can promote critical thinking while maintaining a psychologically safe learning environment. However, further investigation is needed to understand how observing others' inappropri-

ate behaviors influences learning motivation.

This study has several limitations. First, it focused exclusively on genetic counselors with facilitator experience. Second, it included only those who responded to the questionnaire, potentially excluding individuals not interested in facilitation. The relatively low response rate (29.7%) raises the possibility of selection bias, as individuals with a strong interest or positive experiences in facilitation may have been more likely to participate. Third, this questionnaire can examine the correlation between two events but cannot verify causality. Finally, the small sample size of 45 participants limits the generalizability of the findings and may have reduced statistical power, as reflected in the wide confidence intervals. Therefore, these results should be interpreted as exploratory and indicative of potential trends rather than definitive conclusions.

In conclusion, the successful experiences of facilitators are not related to years of experience but are associated with learning experiences and confidence. Individuals with learning experience as facilitators and confidence in their facilitation skills have observed instances of inappropriate facilitation by others. Opportunities to enhance facilitation skills contribute to developing confidence among facilitators. Applying these findings to the training of facilitators could enhance their effectiveness, which, in turn, may improve the skills of genetic counselors.

Future studies could include a larger number of participants and not focus exclusively on genetic counselors with facilitator experience. Further, surveys could be designed to verify causality as well.

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Kuroda, M. and Miyake, H. confirm that they had full access to all the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis. All authors gave final approval for this version to be published and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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