



## Research Article

# Agreement on Core Components of an E-Learning Cultural Competence Program for Public Health Workers in South Korea: A Delphi Study



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## SUMMARY

**Purpose:** This study aimed to seek agreement on the core components of an e-learning cultural competence program for Korean public health workers (PHWs) while prioritizing educational content areas.

**Methods:** A two-round Delphi study was performed with 16 Korean experts from five disciplines. Data were collected between August 30 and November 24, 2017. A questionnaire was developed from literature reviews and previous focus group interviews concerning PHWs. The panel members were asked to rate the importance and urgency of educational content areas and the effectiveness of teaching–learning methods and gave opinions on their appropriate frequency, duration, and target audience. Responses were analyzed using descriptive statistics. A median of 4.0 or greater or a rate of agreement of 75% or greater was considered a “consensus” for the purposes of this study.

**Results:** All consenting participants responded to two-round surveys. Participants reached consensus on thirty-one educational content areas. Of these, the highest priorities were “necessity of cultural competence of PHWs,” “health characteristics according to race and ethnicity,” and “establishing trusting relationships with migrants.” The most effective teaching–learning method was case-based learning, with seven to eight sessions of training and duration of fewer than 30 minutes per session.

**Conclusion:** Multidisciplinary experts proposed 12 prioritized educational content areas and effective teaching–learning methods as well as their frequency, duration, and target audiences, reflecting Korea-specific multicultural phenomena and the nature of the work of PHWs. These findings can contribute to preparing PHWs to provide culturally competent services to migrants in their communities.

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## Introduction

With South Korea (henceforth referred to as “Korea”) recently emerging as a destination country for migration, the ethnic, racial, and cultural diversity of the Korean population is increasing. According to data from 2016, foreign residents accounted for 3.4% (1,711,103) of the total population. This is more than three times the

number of foreign residents reported in 2006 [1]. It is estimated that, in the next 40 years, five of every 100 Koreans will be members of a multicultural family [2]. Most married migrants who are members of multicultural families in Korea are women who experience pregnancy and childbirth within a short period of entering the country. These women are the main targets of maternal health care provided by public health workers (PHWs) [3].

Previous studies [2,4] showed that migrants had a high level of demand for public health care, and many (76.6%) said that they would be willing to avail such services if they were provided in public health centers. In Korea, PHWs include various professionals, such as nurses, medical technicians, Western and oriental medical doctors, dietitians, dentists, and pharmacists [3]. The role of PHWs in providing primary health care is important for meeting the basic

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health-care needs of migrants and for promoting health equity. However, only a few (16.3%–20.3%) PHWs have received the cultural competence training needed to provide effective services to migrants [5,6]. PHWs have pointed out that additional training is needed, including information on the main migrant groups encountered at public health centers [3]. It is well known that cultural competence education for health-care workers has a positive effect on the health outcomes of migrants [7,8]. Therefore, it is imperative to provide appropriate education for enhancing the cultural competence of PHWs in Korea.

A recent systematic literature review study pointed out that there is a high degree of heterogeneity in the content areas, methods, and evaluations of cultural competence education for health-care professionals; therefore, the quality of evidence is insufficient to draw generalizable conclusions [7]. The same limitation was found in three intervention studies for the development of cultural competence among hospital nurses and public health nurses in Korea [9–11]. Horvat et al. [7] emphasized that future research should seek great consensus on the core components of cultural competence education. They presented 4 core components of cultural competence education interventions: educational content, pedagogical approaches, structure, and participant characteristics. Although a Delphi survey was conducted to identify the core elements of cultural competence in Sweden [12], there is a lack of research to conclude that there was multidisciplinary expert agreement on the core components of educational intervention for health-care personnel.

The educational content areas that comprise cultural competence for PHWs should include not only the universal content necessary for migrant care but also specific content that reflects the cultural characteristics of the major migrant groups in Korea and the actual situations faced at public health centers. Therefore, in order to provide an empirical basis for an effective approach to enhancing the cultural competence of PHWs, it is necessary to provide guidelines on core components that can be used in the development of education programs.

E-learning uses the Internet technology as a delivery method to improve knowledge and behavior; it is also referred to as web-based learning, online learning, distributed learning, computer-assisted instruction, or Internet-based learning [13]. E-learning has many advantages, including applicability, cost-effectiveness, speed of access to up-to-date information, and the possibility of collaborative learning where interactions among learners can be made available to many learners at the same time [14]. Given that the use of online case-based interaction modules in overseas studies for cultural competence education has increased visibly in recent years [15,16], it is expected that the demand for e-learning will increase further.

Despite the many advantages of e-learning, its effectiveness is dependent on the way it is implemented. To deliver educational interventions successfully, it is necessary to take into consideration the type of process that integrates contents, pedagogy, and technical aspects. A well-designed e-learning program should meet the conditions of relevant and logically organized content, flexibility and variety in use of methods, and learner-centric focus. It is well known that a distinct drawback of e-learning is the technology involved in delivering online courses [17]. However, as previous focus group interviews with PHWs in Korea have shown, PHWs already take part in many educational programs in an e-learning environment; thus, they preferred computer- or smartphone-based e-learning for cultural competence courses [3]. Therefore, this study aimed to seek agreement on the ideal core components of an e-learning cultural competence program for Korean PHWs, while prioritizing educational content areas from the perspective of a panel of experts.

## Methods

### Study design

This is a Delphi study aimed at reaching consensus on the ideal core components of e-learning cultural competence programs for PHWs from the perspective of Korean experts.

### Participants

The panel for the study was composed of experts from various disciplines with an understanding of Korea's multicultural society. To assemble the panel, authors reviewed published articles and books on cultural competence education in various fields and consulted with the research project advisory committee. The criteria for selecting the expert panel for this study were as follows:

- Author of an article on cultural competence in the past 10 years (more than two articles as the first or corresponding author)
- Authorship of a book on cultural competence within the past 10 years
- Experience and involvement in cultural competence education programs
- An understanding of the purpose of the study and willingness to participate

There are no clear criteria for the number of samples required for a Delphi survey, but 15 to 35 are typical [18]. Authors attempted to contact 23 experts via landline telephones. One refused to participate and six did not respond to three telephone calls from us. Ultimately, 16 experts participated in the study: eight nursing professors, two social welfare professors, four education professors, one public administration professor, and one anthropology professor.

### Data collection

This Delphi study consisted of two rounds designed to reach consensus (Figure 1). The principal investigator for this study explained the purpose and significance of the research, the survey details, and the number of surveys and then requested participation via a landline telephone using a number provided by the literature or posted on the website of the expert's institution. The consent form and questionnaire were sent to the experts who agreed to participate in the survey, and the completed questionnaire was sent to the researcher by e-mail.

In order to construct the questionnaire, authors reviewed the literature (relevant books and domestic and international studies on cultural competence education interventions). Authors also assessed the educational needs for cultural competence through a focus group interview with PHWs [3]. The interview, which involved 26 PHWs working at five public health centers in Gwangju city, explored content, preferred teaching–learning methods, frequency, duration, and target audience. Specific results of the focus group interview can be found in a published article [3].

### Round 1

The questionnaire was based on the four domains of the core components of educational interventions presented by Horvat et al [7]. The questionnaire for the Round 1 survey consisted of 40 items on content areas (10 on awareness, 11 on knowledge, 7 on attitude, and 12 on skills) and 4 items on other components (1 on the teaching–learning method, 1 on frequency, 1 on duration, and 1 on

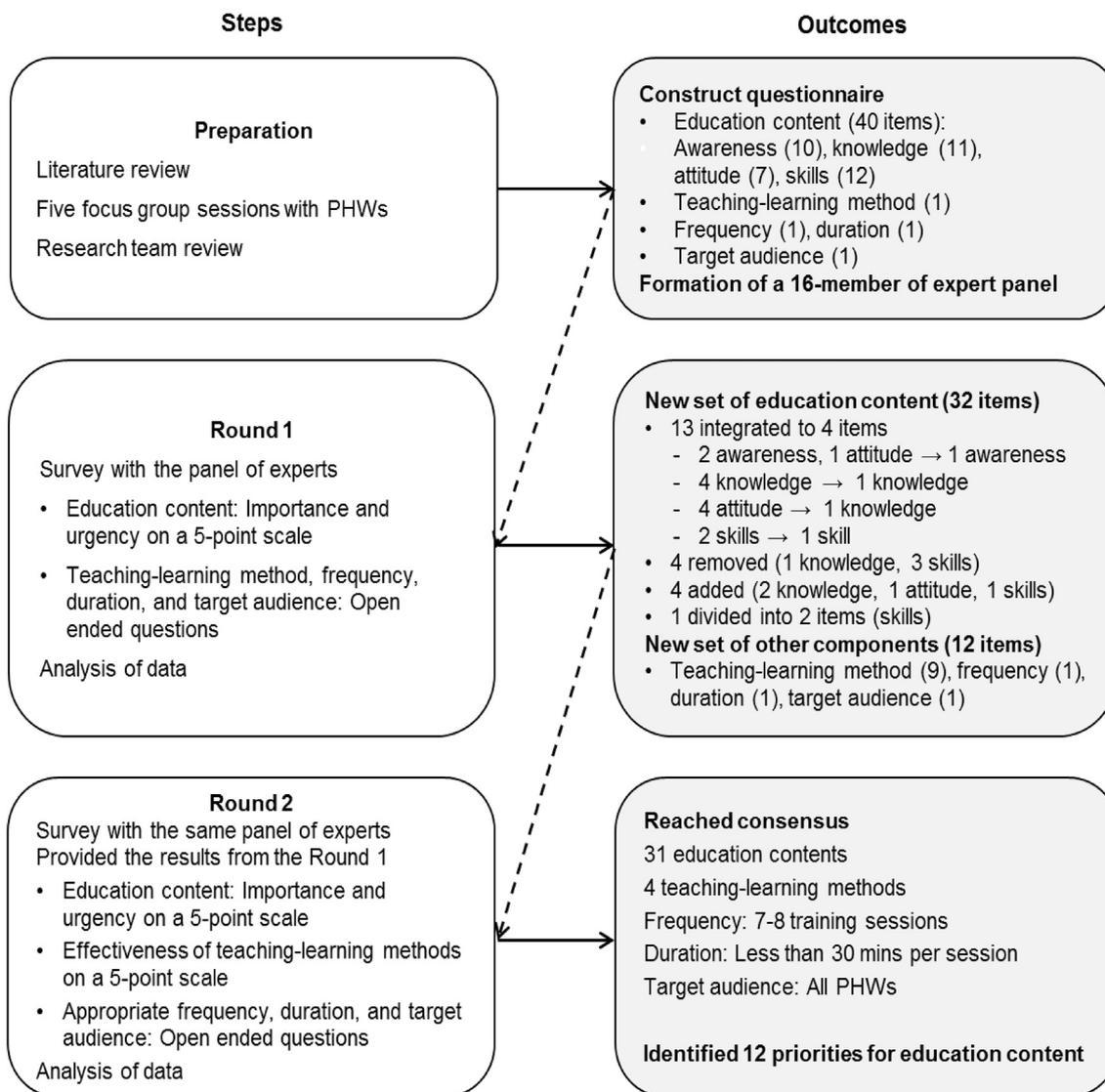


Figure 1. Flowchart illustrating consensus process.

Note. PHWs = public health workers.

target audience). Experts were asked to rate the individual educational content areas on a 5-point scale according to importance (1: “not important” to 5: “very important”) and urgency (1: “very low” to 5: “very high”). The participants were also asked to provide any additional opinions they might have on educational content. The “other components” section was designed to allow for free description of the appropriate teaching–learning methods, frequency of sessions, duration per session, and target audience for e-learning. The first survey was conducted between August 30 and October 2, 2017, and the response rate was 100%.

#### Round 2

The questionnaire for the Round 2 survey was modified after reflecting on the results of the responses from Round 1. There were 32 items related to educational content areas (9 on awareness, 9 on knowledge, 4 on attitude, and 10 on skills) and 12 related to other components (9 on the teaching–learning method, 1 on frequency, 1 on duration, and 1 on target audience) on the questionnaire. Regarding the importance and urgency of the educational content areas, the results from Round 1 (median, quartile) and individual

answers were included. This allowed the participants to compare their own responses with those of the entire panel of experts; the responses to open questions were also summarized. In the items about educational content areas, 13 items that were considered similar were combined into 4 items, and 4 items on which consensus was not reached were deleted. One item that many felt should be divided was separated into two items, and new four items were added. For example, in the knowledge section, four items regarding “eating habits and nutrition”; “culture related to pregnancy, childbirth, and childcare”; “culture relevant to funerals”; and “lifestyle differences according to culture” were integrated into “lifestyle differences according to culture.” An item regarding “critical analysis of Korean multicultural policy” was deleted because it had under .75 consensus. In addition, items regarding “migrants and health literacy” and “understanding of traditional health practices” were added to the Round 2 survey.

The teaching–learning method section consisted of nine items presented by the panel in Round 1 and they were evaluated on the same 5-point scale in terms of effectiveness. Authors provided the Round 1 results for the frequency, duration, and target audience and asked the participants to give their opinions on the appropriate

**Table 1** Importance and Urgency of Educational Content Areas (N = 16).

Area	Educational content area	Importance		Urgency	
		M±SD	Consensus	M±SD	Consensus
Awareness	Necessity of cultural competence of PHWs	4.88 ± 0.34	1.00	4.88 ± 0.34	1.00
	Self-awareness	4.67 ± 0.49	.80	4.67 ± 0.62	.80
	Migrants and health equity	4.63 ± 0.50	.80	4.56 ± 0.63	.80
	Characteristics of multicultural family in Korea	4.63 ± 0.62	.80	4.19 ± 0.75	.75
	Influence of culture on thought and behavior	4.50 ± 0.63	.80	4.31 ± 0.79	.78
	Current status and tasks of public health services for migrants	4.44 ± 0.73	.80	4.31 ± 0.79	.75
	Globalization, migration, and multicultural phenomena in Korea	4.31 ± 0.79	.75	3.94 ± 1.00	.82
	Culture, ethnicity, human diversity, and cultural competence	4.13 ± 0.72	.75	3.82 ± 0.54	.82
Knowledge	Health characteristics according to race and ethnicity	4.88 ± 0.50	1.00	4.88 ± 0.50	1.00
	Health-related cultural differences	4.63 ± 0.62	.80	4.56 ± 0.63	.80
	Difference in pain reaction according to culture	4.63 ± 0.62	.80	4.50 ± 0.73	.80
	Verbal and nonverbal communication characteristics according to culture	4.56 ± 0.63	.80	4.38 ± 0.72	.78
	Migrants and health literacy	4.44 ± 0.63	.78	4.19 ± 0.66	.75
	Lifestyle differences according to culture	4.31 ± 0.60	.75	4.31 ± 0.60	.75
	Culture related to religion	4.19 ± 0.75	.75	4.19 ± 0.75	.75
	Understanding of traditional health practices	4.06 ± 0.68	.82	3.94 ± 0.77	1.00
	Health policy of multicultural society	4.00 ± 0.52	1.00	4.06 ± 0.44	1.00
	Attitude	Acceptance of the health belief and behavior of migrants	4.69 ± 0.60	.85	4.63 ± 0.62
Respect for cultural beliefs of migrants		4.63 ± 0.62	.80	4.50 ± 0.63	.80
Respect for migrants' autonomy in health decisions		4.38 ± 0.72	.78	4.25 ± 0.68	.75
Activities to promote sensitivity to cultural diversity		4.38 ± 0.50	.75	4.38 ± 0.50	.75
Skills	Establishing trusting relationships with migrants	4.81 ± 0.40	1.00	4.63 ± 0.50	.80
	Cultural health assessment	4.69 ± 0.48	.80	4.69 ± 0.60	.85
	Planning health care for migrants	4.63 ± 0.62	.80	4.31 ± 0.87	.78
	Strategies to improve health behavior and treatment compliance of migrants	4.63 ± 0.50	.80	4.63 ± 0.50	.80
	Effective communication skills	4.63 ± 0.50	.80	4.63 ± 0.62	.80
	Using negotiation and problem-solving skills	4.50 ± 0.52	.78	4.25 ± 0.58	.75
	Identifying priorities of health program for local migrants	4.38 ± 0.50	.75	4.13 ± 0.72	.75
	Working with interpreter for effective communication	4.31 ± 0.60	.75	4.13 ± 0.72	.81
	Planning the community cooperation measure	4.13 ± 0.34	1.00	3.94 ± 0.44	1.00
	Simple greeting and useful expression in multiple language	4.06 ± 0.68	.82	3.94 ± 0.68	.81

Note. M = mean; PHWs = public health workers; SD = standard deviation.

frequency, duration, and target audience. Round 2 was conducted between October 12 and November 24, and the response rate was 100%.

#### Data analysis

The data in this study were analyzed by descriptive statistics (frequency and percentage, mean and standard deviation, median, and quartile) using IBM SPSS 23.0 statistical program (IBM Corp., Armonk, NY, USA). Expert consensus was calculated using interquartile range and median (1: interquartile range/median). A median of 4.0 or greater or agreement of 75% or greater was considered a “consensus” [19]. To prioritize educational content areas, the Eisenhower Matrix was used [20]. The two axes of the matrix represented importance and urgency, and the four quadrants, which represented “important and urgent,” “important but not urgent,” “urgent but not important,” and “neither important nor urgent,” were subsequently divided. This study separated the Eisenhower Matrix based on the average values for the content areas, as plotted on an X- and Y-axis. 12 items were identified under the “important and urgent” section as the top priorities by considering the median value of importance and urgency the criterion for the cutoff point.

#### Ethical considerations

This study was approved by the ethical review board at Chonnam National University (Approval no. 1040198-170725-HR-053-02). Authors explained the purpose of the study, the voluntary nature of interview participation, and the absence of a penalty for declining to participate. The written consent form was sent to those

who indicated their intention to participate by e-mail. Participants received a small gift for participating.

#### Results

Table 1 shows the results for the 31 items on which final agreement regarding the importance and urgency of the content of cultural competence education for PHWs was reached. Of the 32 items included in the “awareness” section of the second questionnaire, “understanding theories related to cultural competence” did not satisfy the consensus standard because the median value for urgency was 3.0. Of the educational content areas for which consensus was reached, the score for importance in the “awareness” section was highest for “necessity of cultural competence of PHWs” (4.88 ± 0.34) and “self-awareness” (4.67 ± 0.49), and the same educational content areas were found to be the most urgent. In the “knowledge” section, the score for importance was highest for “health characteristics according to race and ethnicity” (4.88 ± 0.50), “health-related cultural differences” (4.63 ± 0.62), and “difference in pain reaction according to culture” (4.63 ± 0.62), and the same educational content areas were also the most urgent. The score for importance in the “attitude” section was highest for “acceptance of the health beliefs and behaviors of migrants” (4.69 ± 0.60) and “respect for cultural beliefs of migrants” (4.63 ± 0.62), and the same educational content areas were also the most urgent. The score for importance in the “skills” section was highest for “establishing trusting relationships with migrants” (4.81 ± 0.40), and the urgency was highest for “cultural health assessment” (4.69 ± 0.48) (Table 1). There were 12 items from the prioritized educational content areas that exceeded the cut-off point values for both importance and urgency (Figure 2). Specifically, in the “awareness” section, there were three items:

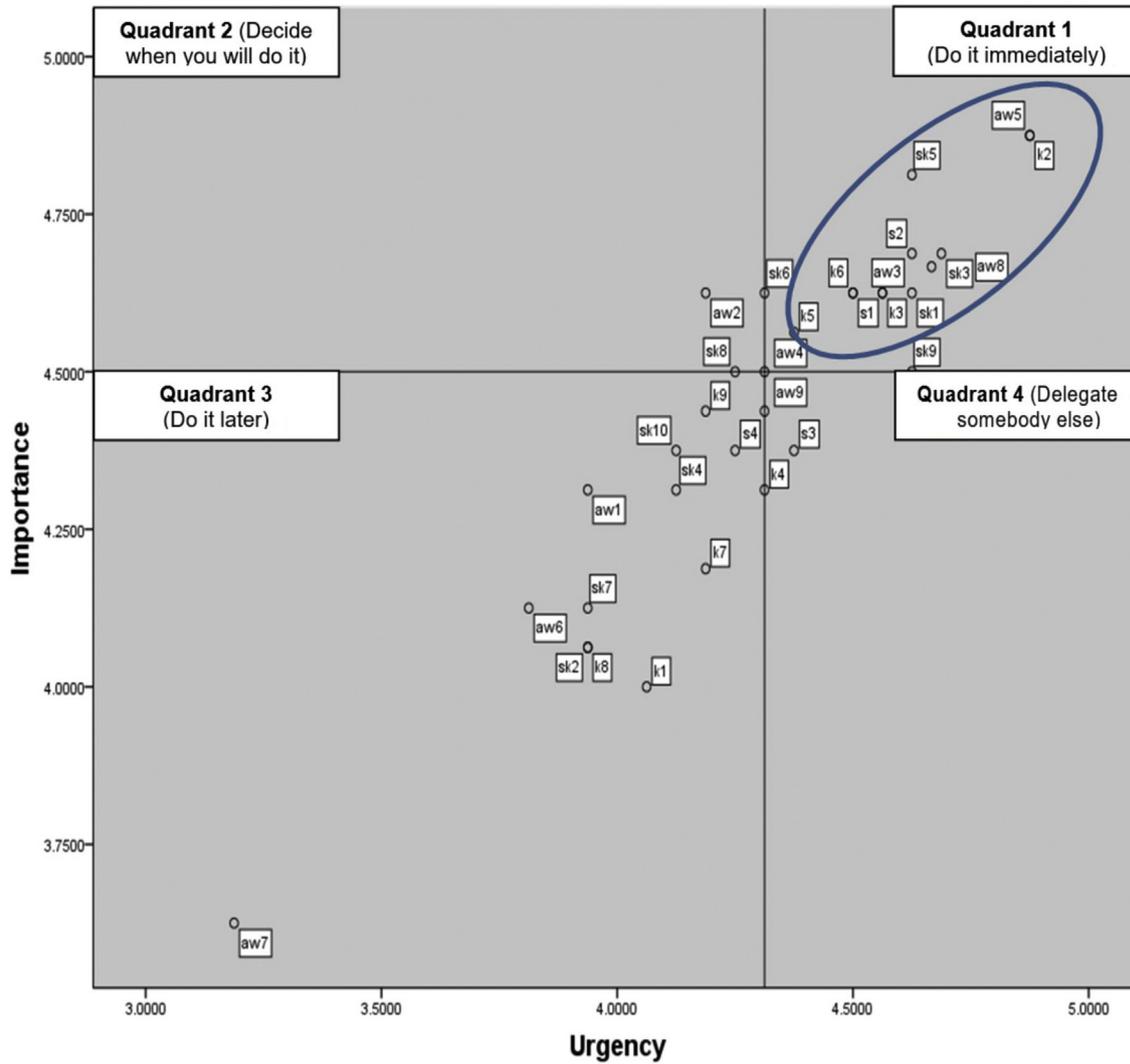


Figure 2. Twelve prioritized educational content areas using the Eisenhower Matrix.

“necessity of cultural competence of PHWs,” “self-awareness,” and “migrants and health equity.” In the knowledge section, there were four items: “health characteristics according to race and ethnicity,” “health-related cultural differences,” “difference in pain reaction according to culture,” and “verbal and nonverbal communication characteristics according to culture.” The two prioritized items in the “attitude” section were “acceptance of the health beliefs and behaviors of migrants” and “respect for cultural beliefs of

migrants.” In the skills section, the three items “establishing trusting relationships with migrants,” “cultural health assessment,” and “effective communication skills” were prioritized. The results for the preferred teaching–learning methods, frequency, and duration are shown in Table 2. Agreement was reached on four teaching–learning methods. The teaching–learning methods of case-based learning ( $4.69 \pm 0.48$ ), utilizing audiovisual materials ( $4.25 \pm 0.77$ ), problem-based learning ( $4.13 \pm 0.89$ ), and simulation

Table 2 Preferred Teaching–Learning Method, Frequency, and Duration (N = 16).

Area	Category	n (%)	M±SD	Consensus
Teaching–learning method	Case-based learning		4.69 ± 0.48	.80
	Utilizing audiovisual materials		4.25 ± 0.77	.75
	Problem-based learning		4.13 ± 0.89	.75
	Simulation		3.81 ± 0.75	.75
Frequency (number of sessions)	7–8	6 (37.5)		
	9–10	4 (25.0)		
	11–12	4 (25.0)		
Duration (minutes per session)	13 ≤	2 (12.5)		
	≤ 30	8 (50.0)		
	31–60	3 (18.8)		
	61–90	1 (6.2)		
	91–120	4 (25.0)		

Note. M = mean; SD = standard deviation.

**Table 3** Additional Expert Opinions on the Core Component.**Education content**

- Understanding both the universality and diversity of culture
- Providing situational cases that are familiar to PHWs
- Dealing with topics that are more job oriented rather than with simple understanding
- Exploring multicultural health-care policies in other countries
- Focusing on the characteristics of the migrant groups frequently encountered by PHWs
- Taking into account the linkages among the content areas when developing the education program (e.g., dealing with the topic of “communication” in relation to knowledge and skills)
- The necessity of practicing sensitivity-enhancing strategies
- Choosing the educational content while considering the target audience's scope of work
- Considering organizational competence (e.g., availability of interpreter services)
- Utilizing data obtained from interviews with migrants and observations gathered from field work when developing educational materials

**Teaching–learning method**

- Mixed education methods (e.g., online and offline)
- Use of periodic self-inspection and intermediate tests after education
- Use of case-based learning more than problem-based learning, which requires prior self-learning, in light of the busy work schedules of PHWs

**Frequency and duration**

- Subdividing modules into shorter hours for topics requiring more than 30 minutes, given the concentration required for e-learning

**Target audience**

- Education for the direct care provider (e.g., visiting nurse) and manager at the same time.
- Selection of target audience considering educational contents
- Targeting all members of the public health center
  - Priority to PHWs in charge of direct interaction with migrants
  - Operation of basic and advanced courses (e.g., advanced course for direct care providers)
  - Focus on skills for direct care providers and on awareness, knowledge, and attitudes for all PHWs

Note. PHWs = public health workers.

(3.81 ± 0.75) were identified as the most effective. Lectures, discussions, self-reflection, role play, and blended learning did not receive consensus. The greatest proportion of participants (37.5%) considered 7–8 e-learning sessions the most appropriate number. Suggestions for the duration of each session ranged from as few as 20 minutes to as many as 120 minutes. Under 30 minutes (50.0%) was regarded as the most appropriate length of time, considering the concentration required for e-learning methods to be effective (Table 2). In the surveys in rounds 1 and 2, the overall view of the experts on the target audience was that all PHWs involved in the health care of migrants need specialized education. In addition, the necessity of providing a basic course, an advanced course, and an expert course (in consideration of the tasks involved) was suggested. Other opinions obtained through the open-ended questions are shown in Table 3. Ways in which PHWs can accept the issue of cultural competence comfortably and apply it easily in practice were particularly emphasized. The experts also suggested that education programs should be designed to take into consideration the links between the content areas (awareness, knowledge, attitude, and skills) according to the topic. Moreover, the educational methods should be implemented with special consideration given to the characteristics of the learners and their multidimensional work environment, including preparation levels of organizational cultural competence. In addition, the participants agreed that all PHWs should be targeted for cultural competence education so that public health organizations can become culturally competent.

## Discussion

PHWs, as primary health-care providers, need to possess the ability to communicate, interact, and sometimes negotiate and actively intervene, in consideration of the circumstances of migrants from diverse backgrounds [21]. In this study, authors have shown that multidisciplinary experts agreed on the core components of e-learning cultural competence program for PHWs as well as 12 prioritized educational content areas reflecting Korea-specific multicultural phenomena and the nature of the work of PHWs in Korea. This study can be used as the basis for cultural competence education interventions for PHWs, and it contributes to this effort

by providing evidence on the characteristics of effective cultural competence education.

The educational content areas with high priority in terms of awareness, as proposed by the experts, were “necessity of cultural competence of PHWs,” “self-awareness,” and “migrants and health equity.” Self-awareness, which implies the constant effort to avoid social prejudice or stereotypes, helps individuals to understand the impact of their actions on others [3,21]. Because cultural awareness is a very important factor in promoting the health equity of migrant communities, enabling interventions that reflect cultural characteristics, a strategy for enhancing awareness among PHWs is needed. Although Korean health-care workers are reported to have a negative perception of migrant communities [3], previous studies that provided cultural competence education rarely emphasized the need for cultural competence or self-awareness [9–11]. Most of them only briefly introduced the definition of “culture care” or simply defined the concept of “cultural competence.” In a previous study [8], the 36-hour cultural awareness improvement training provided to 114 nurses and home care providers had a positive effect on cultural awareness and attitudes. Thus, emphasizing the need for cultural competence and self-awareness is a key topic consistent with the purpose of education for PHWs, and it needs to be dealt with extensively [22].

The educational content areas with high priority in terms of knowledge were “health characteristics according to race and ethnicity,” “health-related culture difference,” “difference in pain reaction according to culture,” and “verbal and nonverbal communication characteristics according to culture.” In several previous studies, knowledge of race and culture, knowledge of the health characteristics and status of migrants, and knowledge related to differences in lifestyle (by culture) were included in the content of educational programs [7,23]. PHWs can be effective supporters and advocates because they have a wealth of knowledge about different cultures and an improved understanding of migrant populations [21,24]. The expert panel in this study suggested identifying the racial or ethnic origins of the migrants mainly contacted by PHWs and dealing with them first. It is also necessary to enhance the interest of learners by developing content that uses examples of the cultural differences that PHWs experience directly. In the present study, the “difference in pain reaction according to

culture” item was ranked highest in Round 1, and although its ranking was lower in Round 2, its priority was still high. Because culture affects people's perceptions of health, illness, and health-care practices [25,26], education should provide specific knowledge of these cultural influences. It is also important to understand the characteristics of effective communication in diverse cultures. It is true, however, that it would be difficult for PHWs to acquire knowledge of the various languages spoken by individual migrants because of the limited time and resources available [3]. It is necessary to provide PHWs with information through educational materials such as booklets or smartphone applications, so that they can learn simple greetings and acquire knowledge about the characteristics of nonverbal communication in the culture in order to form a relationship and establish empathy with migrants.

The educational content areas with high priority in relation to attitude were “acceptance of the health beliefs and behaviors of migrants” and “respect for cultural beliefs of migrants.” Openness and value-neutral attitudes toward cultural differences were also a common theme presented in previous studies [8,27]. Empathy for other cultures has been particularly emphasized as a very important factor in cultural attitudes [8,28]. PHWs should approach their work with the view that all individuals are culturally unique; they should avoid projecting their values and worldview on migrants and should respect migrants' unique beliefs and values. The expert panel suggested that cultural attitudes are related to PHWs' understanding of self-awareness; therefore, it is necessary to construct educational content in relation to this concept.

The educational content areas with high priority in relation to skills were “establishing trusting relationships with migrants,” “cultural health assessment,” and “effective communication skills.” Cultural skills are required to understand migrants' needs and to meet their needs based on awareness, knowledge, and an open attitude [29]. The goal of cultural competence education is to provide quality health-care services for migrants; therefore, it is most important to educate PHWs so that they can acquire cultural skills. PHWs should collect data after establishing trust with migrants to assess their health needs, diagnose nursing problems, plan and implement interventions, and evaluate the effectiveness of their interventions. In this process, cultural health assessment is very important because it allows us to systematically assess the cultural situation of migrants along with health problems [24,29].

In order to build trust with migrants and carry out cultural health assessments systematically in actual clinical situations, effective communication is critical. Many previous studies have included some of the educational content areas, such as greetings and useful language expressions, according to culture [7,30]. Recently, as a result of the development of IT technology, several smartphone-based multilingual conversation applications have been developed and popularized. It is possible to use them for a short period, but there is a limit to the depth of communication they allow. Ultimately, in order to understand migrants' culture in depth and to establish relationships with them, PHWs will have to make constant, long-term efforts to acquire knowledge about the language and culture of prominent migrant communities.

The expert panelists agreed that although they were not included in the 12 top priority content areas, “characteristics of multicultural families in Korea,” “current status and tasks of public health services for migrants,” “health policy of a multicultural society,” “identifying priorities of health programs for local migrants,” and “planning community cooperation measures” are essential. This is due to the characteristics of multicultural society of Korea, where the main migrant group using the public health center is the multicultural family. As PHWs are practitioners who implement national health policies within their communities, this reflects the nature of work of PHWs, who must meet the health needs of

migrants by understanding national policies and fostering community cooperation.

In the Round 1 survey, the expert panelists suggested nine types of teaching–learning methods (lectures, discussions, simulations, case-based learning, problem-based learning, utilizing audiovisual materials, reflection, role play, and blended learning). In Round 2, five methods that are relatively difficult to implement in e-learning were excluded, and the final four (case-based learning, utilizing audiovisual materials, problem-based learning, and simulation) were recognized as being effective. Of these, case-based learning was also preferred by the Korean PHWs who participated in the focus interview [3]. However, the expert panelists preferred effective teaching–learning methods that led to active participation, such as problem-based learning and simulation, whereas the PHWs preferred passive forms of education, such as lectures. Various forms of teaching–learning should be designed, including online and offline components as well as active and passive methods, in consideration of learners' preferences. The most effective number of sessions was seven to eight, and the sessions lasted less than 30 minutes. Therefore, when developing a cultural competence program based on e-learning for PHWs, the teaching–learning method, frequency, and duration can be used in various ways according to the educational content [3,26].

The expert panels agreed that it was necessary to target all PHWs and that priority should be given to PHWs who deal with migrants directly in the community. Considering the availability of resources, it was suggested that PHWs who engage in frequent contact with migrants receive priority education and that they should gradually train all other PHWs. In addition, the experts suggested that the education program should be implemented in two levels: basic and advanced. That is, all PHWs and public health administrators should take basic courses, while PHWs who directly provide services to migrants and PHWs at the managerial level should take both the basic and advanced courses.

The strength of this study lies in an integrated approach of pursuing consensus among multidisciplinary experts by using questionnaires reflecting the educational needs of PHWs and using prior literature to identify effective cultural competence educational methods. It also provides guidance on which educational content areas should be prioritized when available resources are limited. In Korea, where research on cultural competence is still in its infancy, it is meaningful to provide practical tips for developing effective education interventions for health-care professionals. To prioritize educational content areas, the Eisenhower Matrix was used, which is commonly utilized to improve time management by focusing on the most important tasks [20]. This study showed that this four-quadrant approach could be a feasible decision-making tool to effectively fill the educational gaps in delivering culturally competent care. Of the 31 educational content areas on which consensus was reached, the 12 that belong in the “important and urgent” quadrant should be covered in the basic course for all PHWs in near future. The remaining 19 content areas might be included in the advanced courses or covered in supplementary materials, depending on the time and resources available. The study is limited in that it did not include experts from PHWs on its expert panel, instead employing mainly academic experts. In future studies, opinions should be gathered from clinical experts who can represent the specialized fields of PHWs. In addition, the educational methods proposed in this study did not provide enough practical guidance to implement an e-learning program. For example, this study has not been able to explore how to increase interactivity, how to sustain learners' motivation, or how to encourage students to complete the courses. To create a successful e-learning program, authors need to consider these barriers during the design stage. Therefore, in future research, it will be necessary

to explore more specific operating methods for e-learning cultural competence programs.

## Conclusion

This study determined expert agreement using a Delphi survey to identify the ideal core components of e-learning programs to improve the cultural competence of PHWs. Multidisciplinary experts proposed 12 prioritized educational content areas and effective teaching–learning methods and discussed their ideal frequency, duration, and target audience in consideration of Korea-specific multicultural phenomena and the nature of the work of PHWs. These findings may contribute to preparing PHWs to provide culturally competent care to migrants in primary health-care settings.

## Conflicts of interest

No conflict of interest has been declared by the authors.

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