

Development of a Proposed Human Resource Promotional Tool to Visualize Skills Acquired by Recently Appointed Nurses at Home-Visit Nursing Stations in Japan

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Abstract

Presently, Japan's aging rate is among the highest in the world. Consequently, home-visit nursing stations ("stations"), where nurses provide medical and nursing care under the direction of family physicians, are increasing rapidly. However, many newcomer nurses do not remain at these stations for long; most have some hospital clinical experience at hospitals but, having been appointed only recently, are new to the work performed at these stations. Having some clinical experience, they are regarded as ready-to-work nurses for whom additional education is unnecessary. However, most newcomer nurses at these stations experience difficulties in executing their duties. Moreover, most educational programs for graduated nurses focus on developing clinical nursing skills. Therefore, an education program that maximizes their clinical experiences in homecare nursing settings is needed. Using spreadsheet software (Excel®; Microsoft Corp.), we developed a proposed educational tool ("tool") for learners and educators and compiled a list of skills necessary for all newcomer nurses according to the training programs published in Japan. The learning method—based on educational theory and instructional design—is designed to help the nurses visualize their acquired skills and promote the self-efficacy of stations' recently appointed nurses, and, thereby, promote greater workplace retention.

Keywords: population aging, community health, homecare nursing, problem-based learning, education, self-efficacy

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1 Introduction

1.1 Research Background and Purpose

Presently, the Japanese population has one of the highest average ages in the world. While Japan's universal health insurance system provides necessary medical care to everyone, the increasingly large population of older adults has precipitated concerns regarding shortages in medical and nursing care staff. Consequently, homecare services have been improved to create a society in which people can live in communities familiar to them until the end of their lives while receiving medical and nursing care services. The number of these home-visit nursing stations ("stations"), where nurses provide medical and nursing care under the direction of family physicians, is increasing rapidly; however, homecare nurses do not work in these stations for very long periods.

Most homecare nurses working at stations have had clinical experience at hospitals; therefore, their educators are inclined to consider them ready-to-work nurses [1]. While the stations' recently appointed nurses have clinical experience in hospitals, homecare nursing differs significantly from clinical nursing in hospitals. Each nurse visits patients alone, and abilities in the areas of general practice, information gathering, communication skills, and the ability to evaluate information from multiple perspectives are required [2]. The stations' recently appointed nurses have reported feeling anxious and confused, as they feel that their clinical experience will not be utilized [2]. Moreover, reportedly, educational support is needed to help stations' recently appointed nurses understand the differences between home nursing and clinical experience [3].

These reported conditions indicate that although stations' recently appointed nurses have clinical experience, they have additional needs for nursing education relevant to working as homecare nurses in these stations. However, in a previous survey of stations' recently appointed nurses' education, we found that 61.5% and 50.6% had no education plan and did not use educational tools, respectively [4]. Furthermore, although various educational tools are used, reportedly, these tools exhibit the following limitations: the inability to take advantage of outside training owing to staffing, time, and budgetary factors; the inability of nurses to find time for education; and the difficulty of using common educational tools [1]. We identified the need for an educational tool that stations' recently appointed nurses can utilize according to their individual experiences. We also recognized that the related continuing education should revolve around on-the-job training (OJT). Further, we believe that experiential learning theory [5] offers a useful learning method for stations' recently appointed nurses with clinical experience.

If stations' recently appointed nurses can effectively be provided with the necessary education that optimally utilizes their clinical experience, they will be immediate assets to—and will improve the nursing care quality at—nursing stations. Furthermore, we believe that stations' recently appointed nurses' utilization of their clinical experience will enhance their self-efficacy and, consequently, precipitate workplace retention. Accordingly, we aimed to design and propose an experiential learning tool ("tool") to help educate stations' recently appointed nurses based on their individual characteristics. This paper explains the details of a proposed instrument we have developed to address this need.

1.2 Novelty of this Proposed System

The tool proposed in this study incorporates instructional design for the learning design and experiential learning theory, and the ARCS model for the learning process, and the tool was completed using Microsoft Excel. These features of this tool include the ability to “design learning that includes the clinical experience values of newcomer nurses,” “set up and visualize the acquired skills of new nurse,” and “reflect on the acquired skills and design.”

2 Definition of Terms

- **Newcomer nurses**

Nurses who are working at stations for the first time.

- **Stations’ recently appointed nurses**

Nurses who have clinical experience at hospitals and are working at stations for the first time.

- **Recently graduated nurses**

Nurses working at stations for the first time after graduating from nursing school.

- **Home-visit nursing stations**

A station is a facility from which nurses visit homes to provide medical and nursing care for patients receiving home health care under the direction of their family physician. The service is available through subscribed medical and long-term care insurance. Stations must have an average of at least 2.5 full-time nurses. Thus, there are numerous microenterprises.

3 Specifications of the Experiential Learning Tool

3.1 Initialization Screen

An educator must set the initialization screen (Figure 1). Here, the necessary skills (knowledge, techniques, and attitudes) for a station’s recently appointed nurses are classified by short-term goals. Short-term goals are divided into basic and professional competencies. The items of these skills were preset by the author using training programs published in Japan for new graduates and new nurses [6-10] and assigned to knowledge, skills, and attitudes. Educators can customize the input items or confirm the preset items and are free to edit these items to set the skills needed by the stations’ recently appointed nurses. In this manner, an educator can foster original skills that fit their station.

The image shows a screenshot of a software application window. At the top is a menu bar with options like 'ファイル', 'ホーム', '挿入', 'ページレイアウト', '数式', 'データ', '校閲', '表示', '開発', 'ヘルプ', and 'Acrobat'. Below the menu bar is a ribbon with various icons for editing and viewing. The main area displays a table with several columns. A large box labeled 'Basic Competencies' is positioned at the top center of the table. Below it, four boxes labeled 'Short Term Goals', 'Knowledges', 'Skills', and 'Attitudes' are positioned above their respective columns. The table contains multiple rows of text, some of which are highlighted in light blue. At the bottom of the table, there are four tabs labeled 'Registration of objectives and the accompanying skills', 'Schedule setting', 'Goal Achievement Schedule Chart', and 'Educational Needs'.

| Short Term Goals | Knowledges | Skills | Attitudes |
|--|----------------------|--------|------------------------------------|
| Able to work as a member of a visiting nursing station. | 職業上のルール | | 職業上のルールを守る |
| Able to adopt an appropriate attitude and posture as a visiting nurse. | 訪問看護の目的・サービス内容 | | 職業上の理念や活動目標に基づいた行動をする |
| Able to observe the lives of clients and their families. | 職業上の理念や活動目標 | | 職業上の理念や活動目標に基づいた行動をする |
| Able to explain and listen. | 基本的な健康知識、訪問看護の歴史の仕組み | | 自分の専門知識に基づいて、患者・家族等に適切に説明・相談・助言をする |
| Able to provide visiting nursing services safely. | 訪問看護の歴史、訪問看護者についての知識 | | 一人で何らかの困難や問題が生じた場合、管理職と連携して対応する |

Figure 1: Initialized Screen

3.2 Evaluating the Clinical Experience Screen

3.2.1 Check the Acquired Skills

A station's recently appointed nurse checks the Acquired Skills Check Sheet (Figure 2) and assigns a check mark against the skills that were acquired. In this manner, skills that have not been acquired can be reflected in the Settings Screen (Figure 3). Additionally, stations' recently appointed nurses can confirm the skills that they need to acquire.

| Short Term Goals | Basic Competencies | | | Check |
|--|---|---|--|-------|
| | Knowledges | Skills | Attitudes | |
| Able to work as a member of a visiting nursing station. | Employment Rules | | Adhere to Workplace Rules | |
| | Purpose and Services of Nursing Care | | "Respond in Accordance with the Business's Philosophy and Activity Objectives" | |
| | Understanding the Philosophy of the Business | | Maintain Smooth Communication with Colleagues and Managers | |
| | Basic Structure of Medical Insurance and Long-term Care Insurance Systems | | Promptly Consult with Colleagues or Managers Regarding Daily Activities | |
| | Understanding the Remuneration System and User Charges for Care | | Promptly Consult with Colleagues or Managers When Noticing Issues with Clients or Families | |
| | Understanding the Use of Local Transportation, Road Conditions, and the Purpose of Visit Destinations | | Preparation and Replenishment of Necessary Items in the Station | |
| | Understanding the Necessary Items and Replenishment Methods within the Nursing Station | | Act Appropriately According to Instructions in the Event of a Disaster | |
| | Understanding the Disaster Response Manual | | Greet with an Appropriate Attitude for the Situation | |
| Able to adopt an appropriate attitude and posture as a visiting nurse. | | Build a Good Relationship with Clients and Their Families Through Communication | Respond to Families and Clients with Polite Attitude and Language | |
| | | | Respond Appropriately to Visitors and Telephone Calls | |
| | | | Visit as Scheduled, On Time | |
| | | | Engage in Self-Learning to Supplement Deficiencies in Knowledge, Skills, and Attitude | |
| | | Make an Effort to Manage Health on a Daily Basis | | |

Figure 2: Checking the Acquired Skills

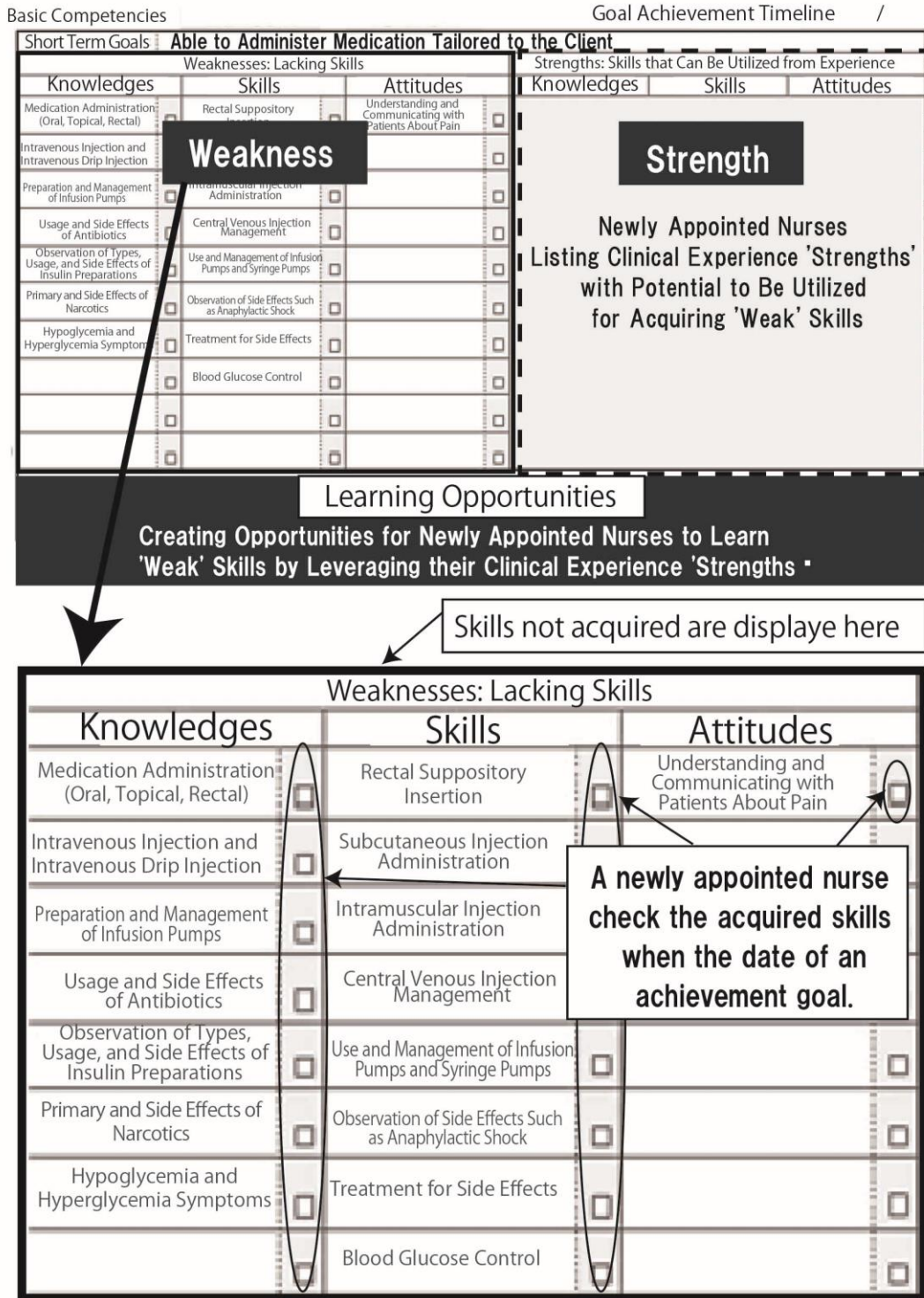


Figure 3: Establishing Learning Opportunities

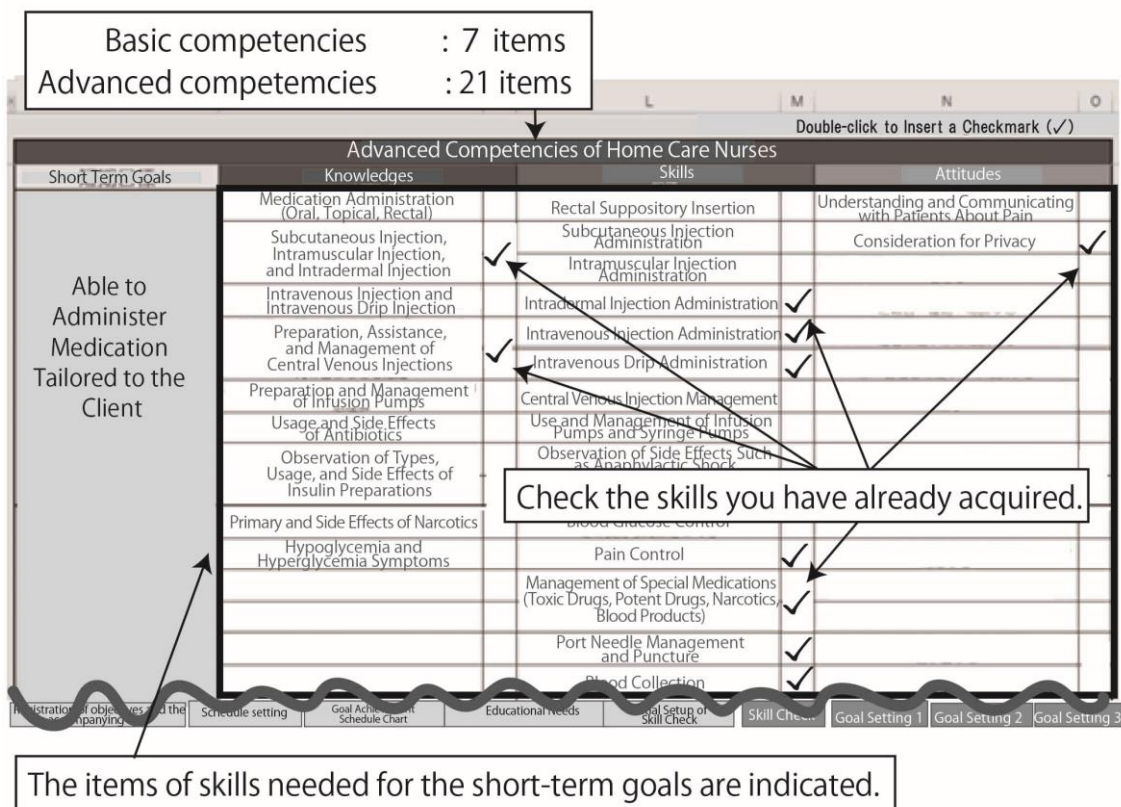


Figure 4: Skills for Stations' Recently Appointed Nurses

3.2.2 Check the Educational Needs

A station's recently appointed nurse can check the applicable items on the sheet using a four-point Likert scale in the Education Need Assessment Tool (ENAT) [7] to identify specific educational needs before receiving such education (Figure 5). This proposed tool, which measures the need for education of homecare nurses, comprises nine subscales and 36 questions. This tool has been tested for reliability and validity, and we have obtained the necessary permissions to use it.

The ENAT will allow all of a station's recently appointed nurses to recognize the items for which they require education or training. After six months or one year of additional learning with the tool, all such nurses should undergo a second evaluation using the ENAD. Their scores can be confirmed on a radar chart and compared before and after their learning, which will also enable them to recognize their growth after undergoing such training.

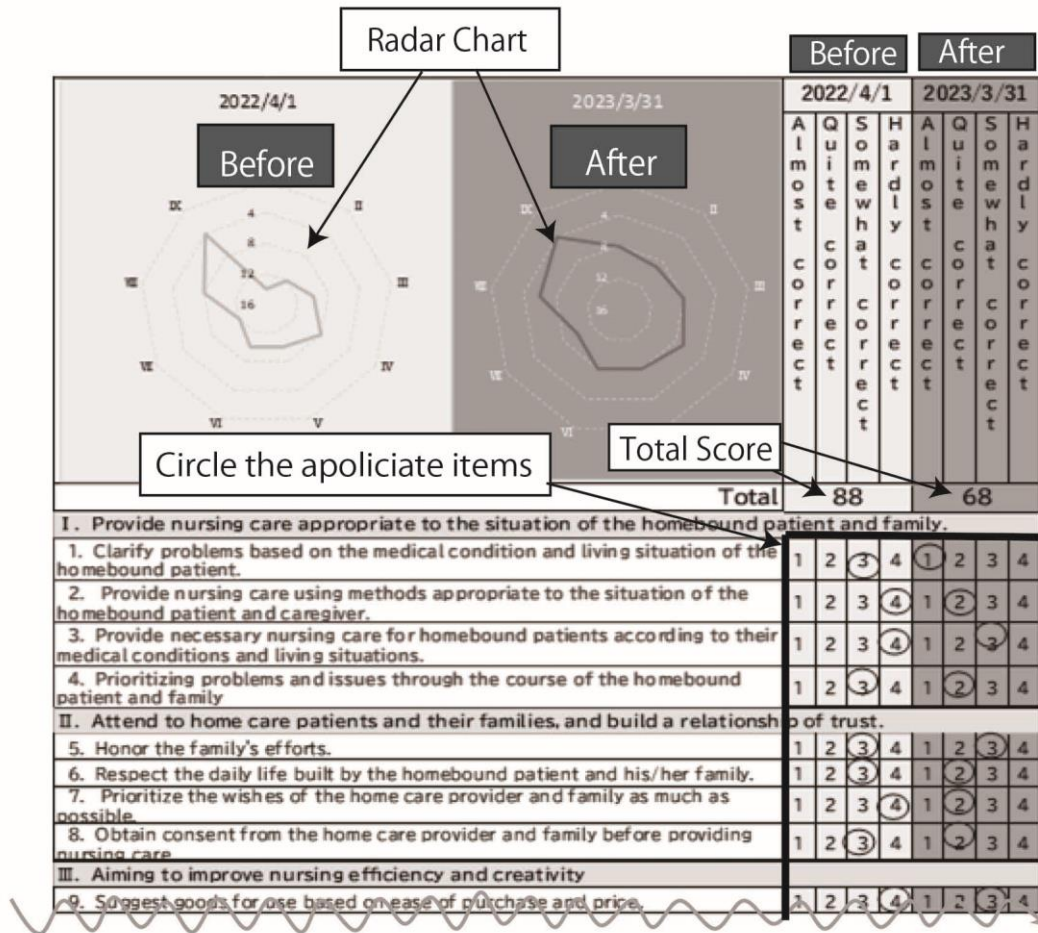


Figure 5: Education Needs Assessment Tool

3.3 Settings for Short-Term Goals and Target Dates Screen

A station's recently appointed nurse can select goals with an educator from the Short-term Goals (28 items), which comprise basic competencies (seven items) and advanced competencies (21 items). A maximum of five goals can be set at a time, from basic competencies and advanced competencies (Figures 6 and 7). They set the priority and evaluation date for each goal. In this manner, they can visually confirm the entire learning schedule.

| Short Term Goals | Start Date | End Date | Priority | Evaluation Date |
|--|------------|-----------|----------|-----------------|
| Able to work as a member of a visiting nursing station. | 2022/11/1 | 2023/3/31 | 1 | 2023/3/31 |
| Able to demonstrate the appropriate attitude and approach. | | | | |
| Able to observe the lives of clients and their families. | | | | |
| Able to explain and listen. | 2022/11/1 | 2023/4/30 | 3 | 2023/4/30 |
| Able to provide home nursing services safely. | | | | |
| Able to understand the functions of other organizations and collaborate. | | | | |
| Able to manage information appropriately. | 2022/11/1 | 2023/3/31 | 2 | 2023/3/31 |
| Able to assist clients with daily life activities. | | | | |
| Able to support patients with dietary needs and swallowing disorders. | | | | |
| Able to collect specimens from clients. | | | | |
| Able to administer medication tailored to the client. | 2022/11/1 | 2023/4/30 | 3 | 2023/4/30 |
| Able to provide skincare tailored to the client's condition. | | | | |
| Able to assist clients with toileting. | 2022/11/1 | 2023/3/31 | 1 | 2023/3/31 |
| Able to provide stoma care tailored to the client's condition. | | | | |
| Acquire the minimum essential nursing skills required for home care 1. | 2022/11/1 | 2023/3/31 | 2 | 2023/3/31 |
| Acquire the minimum essential nursing skills required for home care 2. | | | | |
| Acquire the minimum essential nursing skills required for home care 3. | | | | |
| Able to respond in emergencies. | 2023/1/10 | 2023/6/30 | 5 | 2023/6/30 |
| Able to provide care for lymphedema. | | | | |
| Able to provide nursing care for users with heart disease. | 2022/12/1 | 2023/5/31 | 4 | 2023/5/31 |
| Able to provide nursing care for users with brain vascular disease. | | | | |
| Able to provide nursing care for users with neuromuscular disease. | | | | |
| Able to provide nursing care for users with cancer. | | | | |
| Able to provide nursing care for users with mental disorder. | | | | |
| Able to provide nursing care for users with pediatric disease. | | | | |
| Able to provide nursing care for users with diabetes. | | | | |
| Able to provide nursing care for users with dementia. | | | | |
| Able to provide nursing care for users with musculoskeletal disorder. | | | | |

Figure 6: Setting the Priority and Evaluation Date

A schedule of when to study and achieve is displayed

| Short Term Goals | 22/11 | 22/12 | 23/01 | 23/02 | 23/03 | 23/04 | 23/05 | 23/06 |
|--|-------|-------|-------|-------|-------|-------|-------|-------|
| Able to work as a member of a visiting nursing station. | | | | | | | | |
| Able to demonstrate the appropriate attitude and approach. | | | | | | | | |
| Able to observe the lives of clients and their families. | | | | | | | | |
| Able to explain and listen. | | | | | | | | |
| Able to provide home nursing services safely. | | | | | | | | |
| Able to understand the functions of other organizations and collaborate. | | | | | | | | |
| Able to manage information appropriately. | | | | | | | | |
| Able to assist clients with daily life activities. | | | | | | | | |
| Able to support patients with dietary needs and swallowing disorders. | | | | | | | | |
| Able to collect specimens from clients. | | | | | | | | |
| Able to administer medication tailored to the client. | | | | | | | | |
| Able to provide skincare tailored to the client's condition. | | | | | | | | |
| Able to assist clients with toileting. | | | | | | | | |
| Able to provide stoma care tailored to the client's condition. | | | | | | | | |
| Acquire the minimum essential nursing skills required for home care 1. | | | | | | | | |
| Acquire the minimum essential nursing skills required for home care 2. | | | | | | | | |
| Acquire the minimum essential nursing skills required for home care 3. | | | | | | | | |
| Able to respond in emergencies. | | | | | | | | |
| Able to provide care for lymphedema. | | | | | | | | |
| Able to provide nursing care for users with heart disease. | | | | | | | | |
| Able to provide nursing care for users with brain vascular disease. | | | | | | | | |
| Able to provide nursing care for users with neuromuscular disease. | | | | | | | | |
| Able to provide nursing care for users with cancer. | | | | | | | | |
| Able to provide nursing care for users with mental disorder. | | | | | | | | |
| Able to provide nursing care for users with pediatric disease. | | | | | | | | |
| Able to provide nursing care for users with diabetes. | | | | | | | | |
| Able to provide nursing care for users with dementia. | | | | | | | | |
| Able to provide nursing care for users with musculoskeletal disorder. | | | | | | | | |

Figure 7: Schedule for Achieving Goals

3.4 Settings for the Learning Design Screen

An educator can set the learning design of the preset short-term goals. The Learning Design screen (Figures 8) automatically displays skills that are not yet acquired in the “Weakness” column. Nurses recently appointed to a station can reflect on their clinical experiences to identify useful skills they should acquire. Then, based on the descriptions in the column, educators can identify and establish the corresponding learning opportunities in their on-the-job training.

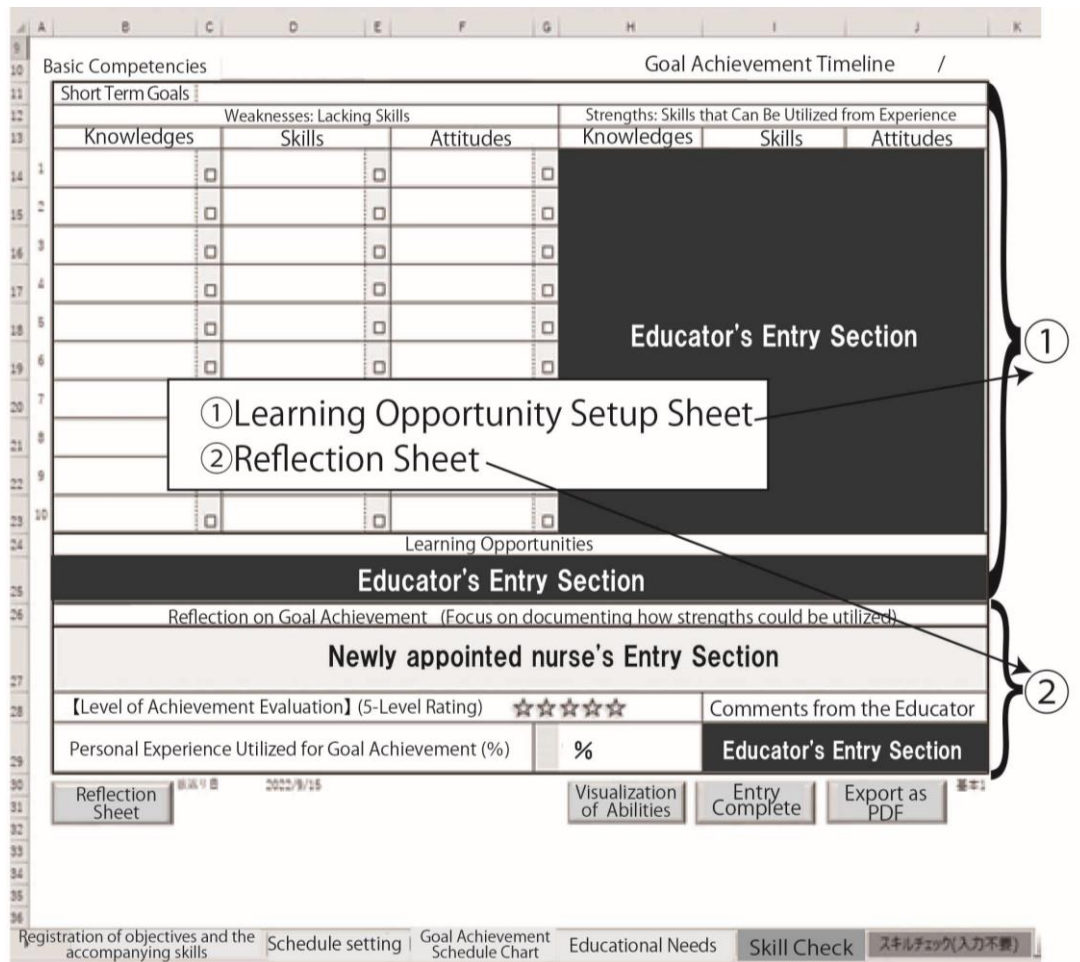


Figure 8: Overall Learning Opportunities and Reflection Sheet

3.5 Screen for Reflection on Learning

On the date of an achievement goal, a station’s recently appointed nurse can check their acquired skills while reflecting on the goal achievement status and recording it in writing on the reflection sheet (Figure 3). This process can be facilitated by following certain steps. First, a station’s recently appointed nurse can check the acquired skills in the “Weakness” column of the Learning Design screen. These checked skills are reflected in the Settings Screen and registered as the acquired skills. Second, the station’s recently appointed nurses can reflect on the goal

achievement status and write it in text on the Reflection Sheet (Figure 9). Third, the stations' recently appointed nurses can select the number of stars to be accorded based on the level of goal achievement (on a five-point scale) and input the percentage of experience used. Subsequently, each station's recently appointed nurses can consult with the educator, who can check the screen of reflection and comment on it.

This Reflection Sheet enables stations' recently appointed nurses to reflect on their improvement. This was included as we are of the view that their reflecting on their growth and feeling self-efficacy is more important than objective evaluation by others. It has been reported that self-efficacy is one of the factors that is positively correlated with work engagement in nursing. Reportedly, engagement is related to personal learning throughout professional healthcare providers' careers and their work environments [11]. Therefore, using this tool, stations' recently appointed nurses can confirm achievements in their learning whether they utilize their clinical experience through feedback from their educators. Therefore, this will ensure that they promote their self-efficacy.

| | | |
|---|-------|----------------------------|
| Reflection on Goal Achievement (Focus on documenting how strengths could be utilized) | | |
| Newly appointed nurse's Entry Section | | |
| Reflection on Goal Achievement (Focus on documenting how strengths could be utilized) | ☆☆☆☆☆ | Comments from the Educator |
| Personal Experience Utilized for Goal Achievement (%) | % | Educator's Entry Section |

Legend:

- ☆☆☆☆☆: [Level of Achievement Evaluation] (5-Level Rating)
- %: Personal Experience Utilized for Goal Achievement (%)

Figure 9: Reflection Sheet

3.6 Visualization Screen for Acquired Skills (Figs. 10, 11)

A station's recently appointed nurse can input illustrations from the visualization screen for acquired skills after reflection. Newly acquired skills are displayed as differently sized berries and differently colored leaves (Figures 10). The leaves are assigned respectively to knowledge, techniques, and attitudes: a short-term goal for basic competencies is represented by a brownish leaf; advanced competencies are denoted by a greenish leaf; and a berry represents the level of goal achievement. The number of stars is represented by the berry's size. The percentage of experience is represented by the berry's color, on a scale of 100 (red) to 0 (yellow green). The station's recently appointed nurse arranges these leaf and berry illustrations in their desired location on a tree (Figures 11), allowing them to create a unique image. Whether experience is being applied can be confirmed by the presence of the berries in the illustration. Therefore, it becomes an indicator that the learning is based on experiential learning. The educator can then judge whether the station's recently appointed nurse could effectively utilize their clinical experience. When all the skills set as short-term goals have been acquired, the short-term goal items can be hidden from display on the Setting for Learning Design screen (Figure 3). This function enables the visualization of the mastery of short-term goals and unlearned skill items.

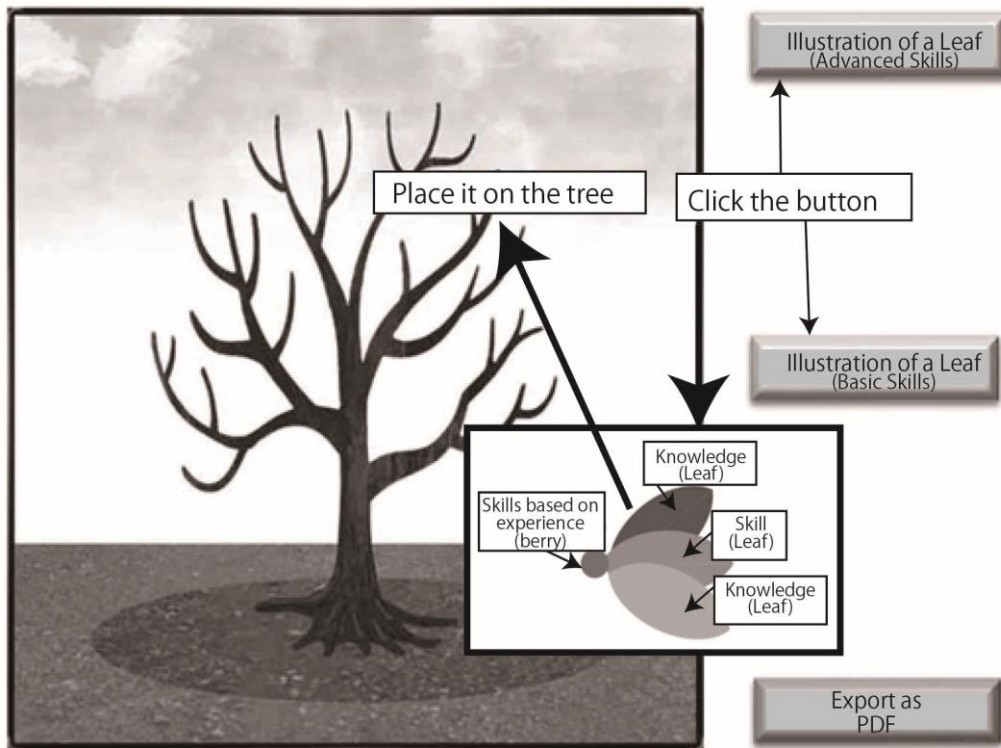


Figure 10: Visualization of Acquired Skills

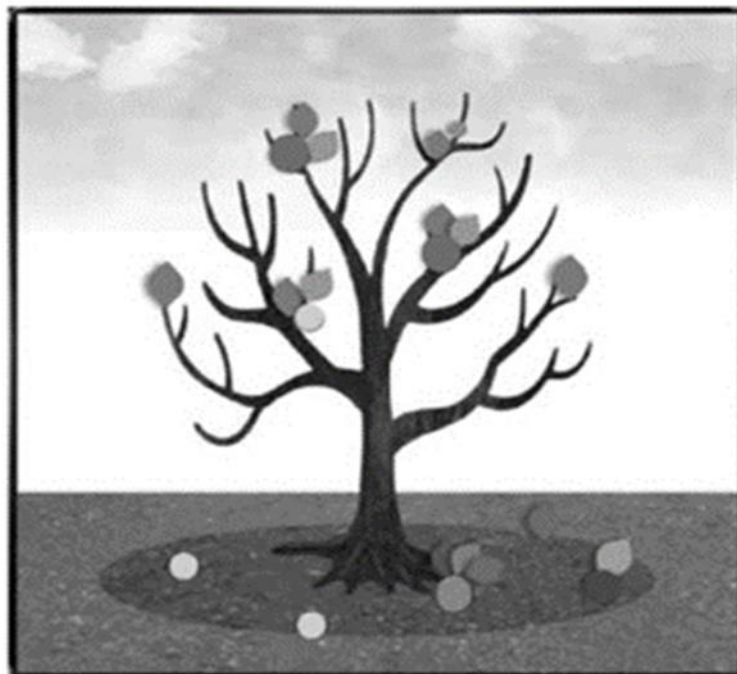


Figure 11: Overall View of the Tree Where the Acquired Skills Are Located

4 Expected Effects of Using the Experiential Learning Tool

Reportedly, most recently appointed nurses at stations are expected to be immediately effective, and most of them are mid-career nurses with various clinical experiences [1]. However, approximately 60% of newcomer nurses experience difficulties in carrying out their duties [12]. Further, approximately 30% of their educators experience setbacks in educating them according to their individual careers [1]. Therefore, we posit that this tool will enable users to attain the results described below.

4.1 Personalized Learning

The tool is a system to realize a learning support environment that includes instructional design elements (ID) [13]. ID is a methodology that makes education and training more effective, efficient, and engaging. Accordingly, this design needs to be tailored to each learner's individual situation.

In this design, the learner's (the stations' recently appointed nurse's) pre-learning situation is assessed before the goals are set (Figures 1, 2, and 4). Therefore, the learner knows the skills that must be learned to reach those goals. Furthermore, educators can recognize the strengths of stations' recently appointed nurses and consider methods to apply them at their stations. In this manner, we are of the view that personalized learning will naturally be provided.

4.2 Improvement of Educational Efficiency and Effectiveness

Using this tool, an educator can set the short-term goals and the learning design for the nurses recently appointed to each station and their individual clinical experience. This tool is expected to increase the readiness of stations' recently appointed nurses as they can use their clinical experience based on experiential learning theory. Experiential learning [5] is the process by which learners create meaning from direct experience. Kolb [5] stated that learning style is an important part of professional mentality. It represents the generic learning competencies that facilitate the acquisition of the specific performance skills required for effectiveness in a core professional role. Thus, this tool is expected to help stations' recently appointed nurses utilize their clinical experience to acquire skills in the field of home care.

Additionally, recently appointed station nurses cannot typically receive instructions from their educators while they are in patients' homes, as they often have to undertake such visits alone. Thus, stations' recently appointed nurses must reflect on their practice to analyze whether they have been successful in their tasks, along with the help of their educators. We believe that this tool will help them engage in regular reflection and set new short-term goals.

Furthermore, educators can recognize stations' recently appointed nurses' individual characteristics and accordingly set up short-term goals and learning opportunities within a reduced amount of time by using this tool. Traditional methods take a longer time to achieve these goals as existing educational programs are paper-based with a wide range of goals and evaluation items. If the stations' recently appointed nurses can learn how to study based on learning design, they will be able to constantly check their own situation and analyze the aspects they lack and how they ought to achieve those goals, which is expected to lead to self-improvement after the new term.

4.3 Enhancement of Attraction to Education

The Attention, Relevance, Confidence, Satisfaction (ARCS) model is a method to increase learning motivation. Reportedly, these categories enable quickly gaining an overview of the major dimensions of human motivation, especially in the context of learning motivation [14]. Using this tool, the stations' recently appointed nurses can visually confirm their growth by comparing their growth to the leaves and berries of a tree. This can be expected to increase their interest in further education and their motivation to learn.

Moreover, educators can instantly check the status of skill acquisition through visuals without having to check multiple evaluation items. Thus, educators can communicate with the stations' recently appointed nurses and provide feedback for their efforts and growth instantly. It is reported that the factors associated with a visiting nurse's intent to continue working are the items "pleasure in work" and "I believe that I am recognized and expected by my supervisor and colleagues at work." [3] Therefore, this tool will induce communication between an educator and a station's recently appointed nurse, allowing the educator to provide direct positive feedback to that nurse. Thus, this tool is expected to enable stations' recently appointed nurses to feel their self-efficacy and encourage them to continue working.

4.4 Digitization of Home-Visit Nursing Education

This tool can be used at any time and anywhere by connecting it to the cloud on the Internet. This will enable the stations' recently appointed nurses, who visit homes alone, to acquire the skills to provide medical and nursing care to patients with the educators' support. In addition, the ICT enables collecting the data of any station's recently appointed nurses' educational attributes and educational effects. This will promote the function of this tool and enable us to build an educational system that can be connected with any other home-visiting station.

5 Validation of the Proposed Tool

5.1 Improved efficiency of education

Improved educational efficiency can be expected from the tool's incorporation of instructional design and use of ICT. In order to evaluate the efficiency of education, we believe it is possible to conduct a questionnaire survey of educators regarding their sense of educational burden and use of the tool and compare the results before and after the survey.

5.2 Educational Effectiveness

Educational effectiveness can be expected to be achieved by promoting learning from past experiences based on experiential learning theory. To evaluate this, we believe that it is possible to verify this by comparing scores on the Educational Needs Assessment Tool. Since a lower score on the educational needs score indicates a lower educational need, we believe that if the educational needs score drops after using the tool for a certain period of time, we can conclude that the educational effect has been achieved.

Whether or not the clinical experience possessed by the new nurses was utilized can be evaluated by the size and color of the "fruits" that represent their experience in the visualized illustration of the acquired skills. The size and color of the "fruits" are output according to the new nurse's own 5-point scale of achievement and the degree to which she feels she was able to make use of her

experience. Therefore, if the new nurse feels that she or he was able to utilize her or his own experience and acquire the necessary skills for the new workplace, the "Fruits" will be larger and displayed in red, allowing the educator to visually confirm whether or not she or he was able to educate the new nurse while drawing on her or his own experience. This will allow the educators to visually check whether they were able to educate the new nurses while drawing out their experiences.

5.3 Increased motivation to learn.

Motivation to learn is expected to be effective due to the tool's incorporation of the ARCS model. In order to evaluate the willingness to learn, we believe that using the questions of the ARCS model as an objective evaluation to measure the willingness to learn will enable us to evaluate whether the use of this tool has led to an increase in the willingness to learn.

6 Limitations of This Study

The use of spreadsheet software (Excel®; Microsoft Corp.) makes the tool time-consuming and less convenient to use because it requires the user to select from numerous sheets when inputting data. Additionally, verifying the appropriateness of the content utilized herein, which assigned necessary skills for stations' recently appointed nurses into knowledge, skills, and attitudes, is necessary.

Furthermore, this study does not comprehensively demonstrate this tool's effectiveness. In our future research, we will evaluate this educational tool's availability and effectiveness. Additionally, we intend to develop an application for this tool, which can be used on tablet devices and, therefore, be used anytime and anywhere.

7 Conclusion

We developed this tool using spreadsheet software (Excel®; Microsoft Corp.). This tool can enable educators to implement personalized learning based on learning educational theory. In this manner, the stations' recently appointed nurses' education can be improved in terms of both efficacy and effectiveness. Additionally, stations' recently appointed nurses can confirm their own progress visually by availing an illustrated tree indicating their progress, thereby increasing their overall attraction to education. Finally, the digitization of home-visit nursing education will promote the functionality of this tool and, consequently, improve the current educational system.

Acknowledgments

This work was supported by JSPS KAKENHI (Grant Number 21K10620).

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