



JOURNAL OF THE ACADEMIC SOCIETY FOR QUALITY OF LIFE (JAS4QoL)

2023 VOL. 9(1) 1:1-15

HIDDEN CURRICULUM IN THE PHARMACY EDUCATION: A COMPARISON OF THE SIX-YEAR CURRICULUM WITH THE FORMER FOUR-YEAR CURRICULUM

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Citation: KOBAYASHI, A.; KOBAYASHI, Y. Hidden Curriculum in the Pharmacy Education: A Comparison of the Six-Year Curriculum With the Former Four-Year Curriculum *JAS4QoL* 2023, 9(1) 1:1-15.

Online: <https://as4qol.org/?p=3356>

RECEIVED DATE: 2023/02/16 ACCEPTED DATE: 2023/02/18 PUBLISHED: 2023/04/04

ANNOUNCEMENT

- The 2019 International Conference on Quality of Life will be held at Kyoto Pharmaceutical University from Sept 28-29, 2019. Further information can be found at <http://as4qol.org/icqol/2019/>
 - We have moved to continuous publication. Beginning January 2019 the editing committee has decided to adopt a continuous publishing model for Journal publication. Individual articles will be released online as they become ready, allowing a steady stream of informative quality articles. We will also be moving to a calendar year issue cycle. In traditional terms, each volume will encompass a single year and consist of a single issue. Publishing on a just-in-time basis allows authors to present their results in a timely fashion, and our readers, students, and colleagues to access our content and cite articles more quickly and free from the restrictions of a predefined timetable. As a result of these changes, the look and style, as well as the function, of the Journal will be different, and hopefully improved.
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Hidden Curriculum in the Pharmacy Education: A Comparison of the Six-Year Curriculum With the Former Four-Year Curriculum

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Abstract

This study investigated the “hidden curriculum” that exists side-by-side with the formal pharmacy education in the daily life of pharmacy students. Specifically, it focuses on whether pharmacy students acquire through extracurricular activities and during daily school life while attending the pharmacy schools constitute helpful learning that assists them in becoming pharmacists who make positive contributions to society and healthcare. We have also sought to determine which specific extracurricular activities and habits, etc., served to bolster their self-awareness as pharmacists. We conducted questionnaires and interviews and investigated the characteristic “hidden curriculum” these individuals experienced as students at pharmacy schools. Information gathered from a questionnaire revealed that the number of positive responses to the question: “In regard to extracurricular activities experienced in the time you were at a pharmacy school, did what you had learned help you as a pharmacist?” was 63.3% in the former four-year (4Yr) and 71.3% in the six-year (6Yr) cohorts. Based on information compiled from individual interviews, reasons why “extracurricular activities” were helpful as pharmacists were assigned to the categories of “identity,” “professionalism,” “peer effects,” “recognition of others.” It became clear that their extracurricular activities were of great importance to their work and attitudes as pharmacists, as they grew in self-responsibility and self-awareness as pharmacy professionals. The reason for this outcome is that the daily exposure to those experiences while in pharmacy school molded them into pharmacists without them being consciously aware of it. The study results make clear that extracurricular activities during student life were helpful as pharmacists. We conclude that the “hidden curriculum” played key role in the process of building self-awareness and a sense of responsibility required for pharmacists.

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Available online at <https://as4qol.org/?p=3356>

Received: 2023/02/16
Accepted: 2023/02/18
Published: 2023/04/04

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1. Background

In Japan, pharmacists are increasingly in demand, especially with advancements in medical technologies, changes in disease patterns in recent years, as well as the super-aging society. Training for pharmacists is changing from a 4Yr research-oriented education system centered on basic sciences, to a 6Yr program for educating medical personnel. The 6Yr curriculum for pharmacists places a greater focus on “people” than on pharmacological “chemicals”.¹ One example is education aimed at the formation of the pharmacist as an effective medical specialist in clinical sites characterized by performance assessments. In actual practice, the 6Yr education program teaches communication skills, humanism, medical ethics, etc. A well-rounded, cross-curriculum education is linked with problem solving and a full-fledged introduction of action-learning strategies. To ensure quality in pharmacy schools, in 2004, both a pharmacy education model curriculum and clinical training core curriculum were established,² with uniform education nationwide. However, in as much as the 4Yr curriculum was still in place in 2004, the content was further revised in 2015 to conform to a 6Yr curriculum, with establishment of a revised pharmacy education model and core curriculum, including outcome-based education (OBE).³ The first class of pharmacists under the 6Yr curriculum graduated in March 2012, and the 11th class of pharmacists graduated and entered the workforce in March 2022.⁴ What has not changed since the 4Yr curriculum is the pharmacists’ responsibility to contribute to society in general, and to medical care, including in the fields of public hygiene and health.

To foster research in pharmacy education, the Japan Society for Pharmaceutical Education was established in 2016. Further academic papers⁵ and reports⁶ on pharmacy education have been published since then. The plan-do-check-action (PDCA) cycle is implemented for improvements in education, ensuing constant reflection on current pharmacy education. Meanwhile, prior research has emphasized the importance of the “hidden curriculum” that exists side-by-side with the formal education in the daily life of students,⁷⁻⁸ which also holds for medical education sites.⁹⁻¹⁰ Phillip W. Jackson first proposed the term “hidden curriculum” in 1968, and the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT) explains this concept as follows:⁸ The ‘hidden curriculum’ of a school or class refers to all the things that a student learns in their daily life, even without the intention of the educating entity or educators. Said curriculum is comprised of the kind of sites and environments the students live in and experience. According to this definition, included in the hidden curriculum are habits and customs, etc., formed when a student participates in the extracurricular activities (for example, part-time work, club activities, etc.) that are part of student life. Since no prior research could be found that focused on this “hidden curriculum” specifically for pharmacy schools, the present study set out to examine this aspect. Generally, there is a “ranking order” in medical universities, with medical faculties being the most prestigious, followed by pharmacy and nursing faculties. Here, the medical doctor profession is unconsciously considered the “best”.¹¹ However, in terms of educating professionals and their career education, this study hypothesizes that pharmacy students themselves experience the “hidden curriculum” at pharmacy schools and that this actually plays an important role in the development of these students into professional pharmacists. The self-awareness and responsibility required for a pharmacist are acquired gradually through the activities students engage in within their universities and faculty, but also (and importantly) through the “hidden curriculum”, the customs and habits and the atmosphere they absorb from their extracurricular activities.

Therefore, this study focuses on whether the habits and practices, etc., that university students acquire through extracurricular activities and during daily school life while attending the pharmacy schools constitute helpful learning that assists them in becoming professional pharmacists who make positive contributions to society and healthcare. We have also sought to determine which specific extracurricular activities and habits, etc., served to bolster their self-awareness as pharmacy specialists. To that end, we conducted quantitative research (questionnaires) combined with qualitative research (interviews) with pharmacists as study subjects and investigated the characteristic “hidden curriculum” these individuals experienced as students at pharmacy schools.

Through the questionnaire, the former 4Yr and the current 6Yr curriculum students were asked the following research question about their extracurricular activities: “In regard to extracurricular activities expe-

rienced in the time you were at a pharmacy school, did what you had learned help you as a pharmacist?" The two groups were compared. Furthermore, for pharmacists who had graduated under the 6Yr curriculum, interviews were held to explore the following research question: "Why did you evaluate your extracurricular activities as being helpful?" Results from the questionnaire survey were supplemented by the interviews, for a deeper understanding and interpretation.

2. Research methods

2.1 Questionnaire

2.1.1 *Subjects*

As for questionnaire subjects, chosen as comparative control groups were (1) pharmacists who had graduated under the 6Yr curriculum (or "the 6Yr cohort": subject pharmacists who had entered university in the years 2006–2013), and (2) pharmacists who had graduated under the former 4Yr curriculum (or "the former 4Yr cohort": subject pharmacists who had entered university in the years 2000–2005). At survey time, the first 6Yr class of pharmacists was 33 years old (2020). To control to bias due to time era (generation), subjects were to be 38 years of age and younger (i.e., pharmacists who had begun their university no earlier than the year 2000). As for subject numbers, the ratio of "was helpful" was statistically hypothesized to be 0.8 for the former 4Yr cohort, and 0.9 for the 6Yr cohort, with an alpha-error of 0.05, power of test of 0.8, and detection of subject numbers for the two groups at 1:1. This resulted in 291 cases for each group. Thus, the numbers for each respective group were set at 300 pharmacists, for 600 pharmacists in total.

2.1.2 *Survey period*

The questionnaire was conducted online, starting on March 1, 2020. The public questionnaire was terminated on March 30, 2020, when replies had been received from a total of 600 pharmacists, 300 in each cohort.

2.1.3 *Questionnaire contents*

As for question items, test subjects were asked whether they were aware of their backgrounds, and whether the extracurricular activities (clubs, student circles, part-time jobs, etc.) of their days as pharmacy students had helped them in performing their responsibilities as pharmacists. Here, the response choice "had helped them" (i.e., "had been helpful") was defined as meaning that their extracurricular activities had been of assistance in realizing Article 1 of the Pharmacists Act: "A pharmacist is to contribute to the improvement and promotion of public health by administering the dispensing of medicine, supply of medicine and other pharmaceutical health and sanitation services, thereby ensuring the healthy living of citizens." For this, the measurement scale was a four-point scale ("Had been helpful," "Had been somewhat helpful," "Had not been very helpful," "Had not been helpful").

2.1.4 *Questionnaire method*

The present study conducted an online questionnaire survey. It was limited to monitors who were pharmacists. Survey subjects were pharmacists who had entered a pharmacy schools from the year 2000 on. The online survey was conducted by an online survey company, Nextit Research Institute, Inc., which has pharmacist monitors.

2.1.5 *Analysis method for questionnaire results*

For the questionnaire, the chi-square test was used to determine the significance of differences between the two groups.

2.2 Interviews

2.2.1 *Subjects*

Interview subjects were 11 pharmacists, 6 pharmacists from the former 4Yr cohort, and 5 pharmacists from the 6Yr cohort; each of these had given their consent to the purpose of this study, with prior studies used as reference.¹² The number of subjects was based on a prior study¹² that stated that the phenomenological interview sample should consist of 3–10 persons; we thus determined that 10 persons in total from the two groups would be interviewed. To avoid regional bias, interview subjects were selected from across Japan. Nextit Research Institute, Inc. (Kobe City, Hyogo Prefecture) was requested to perform the matching. Altogether, approximately 7,000 (50% male; 50% female) pharmacists were registered. Approximated regional distributions were as follows: 42% for the Kanto and Tokyo area; 20% for the Kinki area; 7% for the Hokkaido and Tohoku area; 14% for the Chubu area; 8% for the Chugoku and Shikoku area; and 10% for the Kyushu and Okinawa area. Thus, it was determined that regional bias would be avoided. Selection criteria for interview subjects were as follows: experience as a pharmacist was an indispensable condition; for pharmacists of the former 4Yr curriculum, it was determined that these must be pharmacists who had provided guidance to both pharmacy students of the former 4Yr curriculum and to pharmacy students of the 6Yr curriculum. As for pharmacists of the 6Yr curriculum, these were limited to pharmacists who were in the first to third class of the 6Yr curriculum, meaning that during their six years of study, former 4Yr curriculum students were also attending their school. This limitation was explained by emphasis of this study on the comparability between the 6Yr curriculum and the former 4Yr curriculum, by ensuring that interviewees were pharmacists who had either experienced the former 4Yr or the 6Yr curriculum, even while having contacts with pharmacists who had received their education under-programs other than said curricula. No limitations were set in regard to the pharmacists' workplace type.

2.2.2 *Interview period*

Interviews were held from May 2020 through October 2020.

2.2.3 *Questions*

Questions asked about anecdotes in which pharmacists thought their experiences in extracurricular activities or habits they had acquired in their student days were apply for their duties as pharmacists.

2.2.4 *Interview method*

Interviews were conducted online using a video conferencing system. For the pharmacists who were survey subjects, semi-structured interviews were performed on a one-to-one (person-to-person) basis. Before these interviews, an explanatory and consent document for this study was published online. After ensuring that the interviewee had perused said explanatory and consent document beforehand, on the survey day itself, the author once again explained verbally the purpose of this study and obtained written consent to participate in this study. After the permission of the interviewee was obtained, the content of the interview was recorded. In the online interviews, subjects were chiefly asked about the specific content of their extracurricular activities (clubs, student circles, part-time jobs, etc.) during their university life that were helpful to them in fulfilling their duties as pharmacists. Thus, conversations proceeded with the pharmacist subjects themselves talking and being asked about their own experiences. The recovery and analysis of data obtained from the interviews were all performed at the affiliated research lab of the author.

2.2.5 *Interviews: Analysis method and procedures*

The Modified-Grounded Theory Approach (M-GTA)¹³ was selected as the analysis framework. This was in line with the purpose of performing theoretical analysis in order to clarify the overall characteristics of the utterances (statements) by the survey subjects. This study was characterized by its search for ex-

Table 1. Data Analysis steps

Step	Analysis	Procedure
1	Data creation	Verbatim record was made of the interviews with pharmacists, and data files were created for this record.
2	Conceptualization	The utterances (statements) of the pharmacists were divided into sentences, segmented in terms of semantic chunks, and abstract concepts were extracted.
3	Extraction of subcategories	Subcategories were synthesized from the concepts.
4	Confirmation by university professor	From the verbatim records, the author and another university professor made categorizations and extracted subcategories for Step 1.
5	Revision of concepts and subcategories	The author and one university professor made revisions of the categorizations and extracted subcategories.
6	Category determination	Synthesis of categories from conceptualization and subcategories.
7	Reconfirmation by university professor	Categories were finalized.

planatory theories: based on the respective data from the utterances of the subject pharmacists, the former 4Yr cohort and the 6Yr cohort were compared, with analysis and extraction of unique concepts. Inasmuch as said research characterization was in line with the theoretical characteristics of M-GTA as explained by Kinoshita,¹⁴ M-GTA was selected.

As for the analytic procedures, analysis was performed after making all data autonomous and confirming that the data were in a state such that no data item could be linked with any individual person. To ensure data consistency, reconfirmation was made by a joint researcher. After obtaining the consent of the survey subject, recording was made using a video conferencing system, and a verbatim record was created using NVivo[®]. The record data were collected on an analysis worksheet. Following M-GTA procedure, from the utterances (statements) made by each pharmacist, the analysis worksheet was used to generate reasons (causes) and concepts for the question “What specific content of your extracurricular activities (clubs, student circles, part-time jobs, etc.) during your university life was helpful to you in fulfilling your duties as a pharmacist?” Finally, using the concepts obtained from the data, and their mutual relationships, subcategories were determined, which were ultimately synthesized into categories, and concepts for backing-up results were detected. Data-coding was conducted first by the author, after which, in order to ascertain the validity of analysis concepts, a university professor, who is a joint researcher with experience as a pharmacist, checked the analysis worksheet. Table 1 shows the steps of the concrete analysis. Procedure 1 was data creation through collecting the content of the utterances (statements) of the subject pharmacists from the verbatim record. Procedure 2 was division of this data by individual sentences, with collection of these according to their meanings. From these collections of similar meanings, data corresponding to the related concept were summarized on the analysis worksheet. In Procedure 3, subcategories were generated from concepts in accordance with their respective contexts. As open-coding, the respective data for pharmacists of the 6Yr curriculum were compared with those for pharmacists of the former 4Yr curriculum, and the concepts were then reconsidered. As selective coding, proceeding simultaneously, relationships were reconsidered; concepts were extracted; and subcategories were generated. In Procedure 4, a university professor other than the author reformed conceptualization from the verbatim record and extracted categories. In Procedure 5, the author and the university professor collected their concepts and extracted categories, and revised them. In Procedure 6, categories were determined from subcategories that conformed to their contexts. In Procedure 7, the categories were finalized.

To ensure the quality of the qualitative research described in this section, this study proceeded while referring to the Standards for Reporting Qualitative Research, developed by O’Brien et al.,¹⁵ which are specialized for interview research. This study was approved by the Showa University Ethics Committee concerning Research, etc., Performed with Humans as Subjects (Approval No. 381). Further, we received no funding, etc., from private companies.

Table 2. Back Ground of Subjects

		The former 4-Year (N=300)		the 6-Year (N=300)	
		(N)	(%)	(N)	(%)
Sex	Male	185	(61.7%)	130	(43.3%)
	Female	115	(38.3%)	170	(56.7%)
Academic Year	2000-2001	139	(46.3%)		
	2002-2003	85	(28.3%)		
	2004-2005	76	(25.3%)		
	2006-2007			111	(37.0%)
	2008-2009			87	(29.0%)
	2010-2011			47	(15.7%)
	2012-2013			55	(18.3%)
Work Place	Pharmacy, Drug store	231	(77.0%)	220	(73.3%)
	Hospital	69	(23.0%)	80	(26.7%)
	Company	0	(0.0%)	0	(0.0%)
	Other	0	(0.0%)	0	(0.0%)

3. Results

3.1 Questionnaire results

3.1.1 *Number of subjects*

Attributes of the 600 subjects of the questionnaire survey were as follows (Table 2): the former 4Yr cohort comprised 185 men and 115 women, for a men-to-women ratio of ca. 6:4. Meanwhile, the 6Yr cohort comprised 130 men and 170 women, for a men-to-women ratio of 4:6. As for year of entering a pharmacy school, the largest number in the former 4Yr cohort was 139 pharmacists who entered in April 2000 for Academic Year (AY) 2000–2001, followed by 85 pharmacists who entered university in AY2002–2003, and 76 pharmacists in AY2004–2005. As for the 6Yr cohort, the largest number was 111 pharmacists who entered university in AY2006–2007, followed by 87 pharmacists in AY2008–2009, 55 pharmacists in AY2012–2013, and 47 pharmacists in AY2010–2011. As for workplace, pharmacy/drugstore was for over 70% among both groups, with 77.0% in the former 4Yr cohort and 73.3% in the 6Yr cohort. Subject pharmacists who worked in hospitals were 23.0% and 26.7% in the former 4Yr and 6Yr cohorts, respectively.

3.1.2 *Responses to the question, “Were they helpful?”*

According to the questionnaire results (Table 3), positive responses to the question (“In regard to extracurricular activities experienced in the time you were at a pharmacy school, did what you had learned help you as a pharmacist?”) registered 63.3% (helpful: 24.0%; somewhat helpful 39.3%) in the former 4Yr cohort, while those in the 6Yr cohort registered 71.3% (helpful: 29.0%; somewhat helpful: 42.3%).

Table 3. Were they helpful in extracurricular activities?

Extracurricular activities	the former 4-Year		the 6-Year		P
	N	(%)	N	(%)	
helpful	72	(24.0%)	87	(29.0%)	<0.001
somewhat helpful	118	(39.3%)	127	(42.3%)	
not very helpful	62	(20.7%)	38	(12.7%)	
not helpful	34	(11.3%)	31	(10.3%)	
others	14	(4.7%)	17	(5.7%)	
Total	300	(100.0%)	300	(100.0%)	

P-value: chi-square test. The number of subjects used for the chi-square test is the number of valid subjects (excluding "others")

3.2 Interview results

3.2.1 Subjects

In the former 4Yr cohort, 4 pharmacists had entered university in 1999 or before, (i.e. prior to the establishment of the pharmacy education model core curriculum and the practical training model core curriculum), while 2 pharmacists had entered university in 2004 and after when said curricula were established. As for ages, there were 2 pharmacists in their 30s, 2 pharmacists in their 40s, and 2 pharmacists in their 50s. There were 4 pharmacists whose main place of employment was a pharmacy school, with one of these said persons having five or more years' experience as a pharmacist at a clinical site; this person worked in the practical training sector and was a practitioner professor who taught and trained pharmacy students. 5 pharmacists had experience as community pharmacies. Pharmacists who entered university in AY2004–2005 were educated under the core curricula and had experienced the Objective Structure Clinical Examination (OSCE) and Computer-Based Testing (CBT). In the 6Yr cohort, 2 pharmacists had entered university in AY2006, 2 pharmacists in AY2007, and one person in AY2008, all of whom were

Table 4. Subject attributes of the former 4-Year and the 6-Year Curriculum

No	Curriculum	Academic Year	Year	Sex	Job site	Residence Area	Sites of past experience
# 1	4-year	1996	50s	Male	University	Hokuriku	Pharmacy
# 2	4-year	1997	50s	Female	Pharmacy	Tokyo	Company
# 3	4-year	1996	40s	Male	University	Tokyo	Pharmacy
# 4	4-year	1999	40s	Female	University	Hokuriku	Pharmacy Hospital
# 5	4-year	2004	30s	Female	University	Tokyo	Company
# 6	4-year	2005	30s	Female	Hospital	Kansai	Pharmacy
# 7	6-year	2006	30s	Female	Pharmacy	Kanto	University
# 8	6-year	2006	30s	Female	Pharmacy	Kanto	Hospital
# 9	6-year	2007	30s	Female	Pharmacy	Chubu	Nothing
# 10	6-year	2007	30s	Female	Pharmacy	Kansai	Nothing
# 11	6-year	2008	30s	Female	Pharmacy	Kansai	Nothing

in their 30s and all of whom worked at pharmacies (one person operated a pharmacy; one person was head manager of a pharmacy; and 3 pharmacists were pharmacy employees). Inasmuch as explanatory text for this study was published beforehand, there were no pharmacists in either of the two groups who did not participate in this study, nor those who experienced a desire to not participate during the study (Table 4).

3.2.2 Overall stories

Identified as extracurricular activities that were specifically helpful were experiences pharmacy students had in part-time jobs and club activities. Part-time jobs consisted of work in pharmacies, restaurants, and pubs, and teaching in a preparatory school (*juku*). Club activities were mixtures of activities within the pharmacy faculty and activities with other medical faculty. Reasons why “extracurricular activities” were helpful in their work as pharmacists were assigned the category names of “identity,” “professionalism,” “peer effects,” “recognition of others.” Further, subcategories (shown in parentheses) and concepts (shown with underlines) are also shown. In accordance with M-GTA, 23 concepts were generated, and four categories were collected from the arrangement of said concepts into 8 subcategories. Fig 1 shows an overall story concept diagram, and Table 5 shows categories, subcategories, and concepts for specific content of extracurricular experiences occurring in the student lives of subject pharmacists that were helpful in fulfilling their duties as pharmacists.

Table 5. Categories, subcategories, and concepts constituting reasons why “extracurricular activities” were helpful in test subjects’ duties as pharmacists

	< Category name >	(Subcategory)	Concept
Self-awareness as a healthcare specialist	< Identity >	(Desire for self-Improvement)	6-Year Motivation Discernment with the ability to ask questions Increase in stocks of knowledge
		(Self-growth)	Former 4-Year Opportunities to look at and reflect upon oneself Social experience Became aware of others and of other university faculties
	< Professionalism >	(Accountability)	6-Year Establishment of human networks Flexibility as occasion may demand Feel of our responsibilities
		(Altruism)	Former 4-Year Cooperativeness Proactive actions Understanding of others
	< Peer effects >	(Horizontal ties)	6-Year Ties with friends Sharing of pleasures and pains together
		(Horizontal ties)	Former 4-Year Trust in others Cooperativity Teach and be taught
	< Recognition of others >	(Self-awareness)	6-Year Planning and implementing Able to change themselves A sense of balance with their surrounding environment
		(Awareness (cognition) of others)	Former 4-Year Know their patients Make special considerations Think and care about people (other-people-centered)

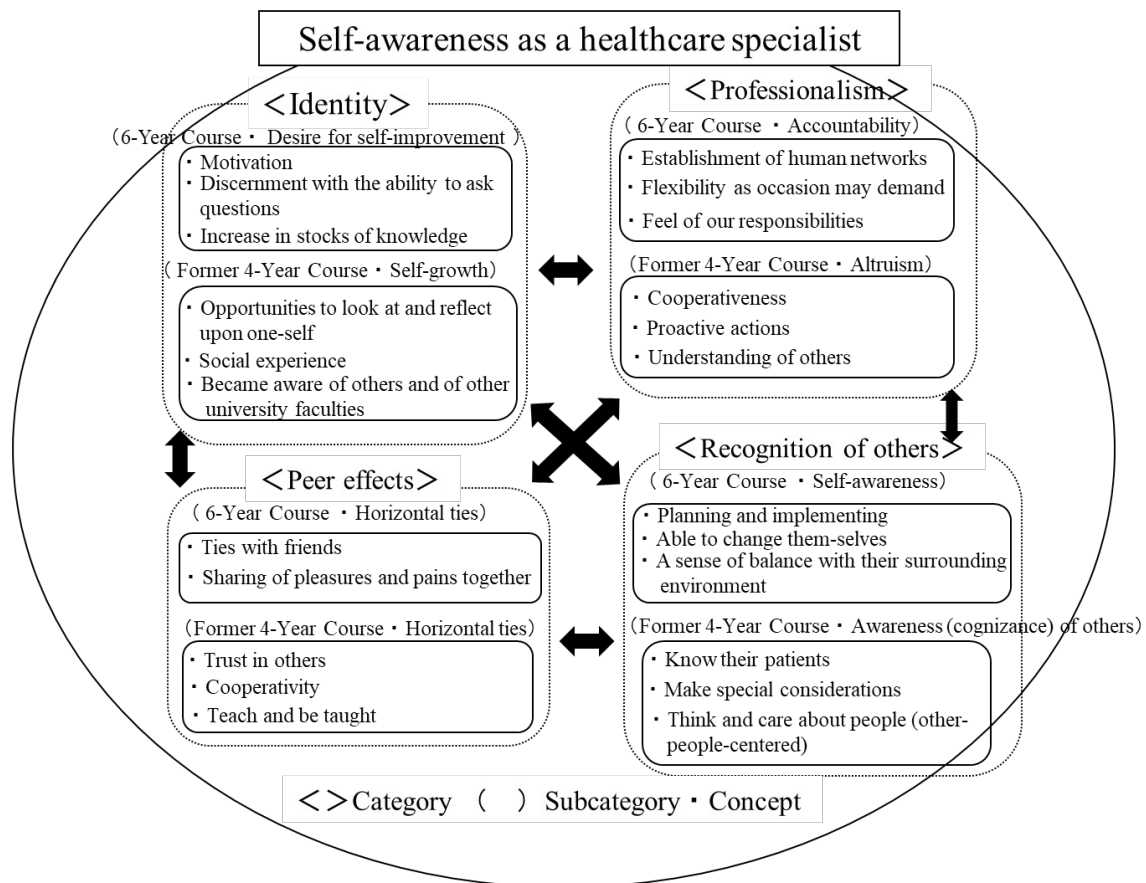


Figure 1. Concept Diagram

As for the category “identity,” pharmacists in the 6Yr cohort considered their extracurricular activities as having fostered motivation in the form of a desire for self-improvement, linked with a desire to work at a clinical site in the future in the role of a pharmacist. This was further connected with self-awareness as a healthcare specialist, with said extracurricular activities providing opportunities to learn discernment for making one’s own decisions, in order to communicate one’s own opinion to others as needed for team healthcare. Furthermore, pharmacists were able to increase stocks of knowledge that had previously been gained and that one could draw from, so as to be helpful in their interactions with patients. As for the former 4Yr cohort, subject pharmacists spoke of their extracurricular activities as providing opportunities to look at and reflect upon oneself. From the perspective of social experience, said extracurricular activities taught these pharmacists lessons that led to self-growth. Furthermore, activities that helped said pharmacists to become aware of others, including medical and nursing students in other disciplines, facilitated learning that fostered self-growth.

As far as “professionalism,” pharmacists in the 6Yr cohort considered their extracurricular activities as having fostered self-awareness and a sense of responsibility. Through said activities, they became aware of the weight of their responsibilities, especially in terms of their responsibility to provide explanations, which is one manifestation of “self-awareness as a healthcare specialist.” Said activities also provided six-year cohort pharmacists with the attitude and skills to be flexible as each occasion might demand, while also helping them establish human networks, so important to a pharmacist when working in a healthcare team. In the former four-year cohort, pharmacists learned cooperativeness from their extracurricular activities, meaning consideration of the needs in one’s surroundings, skills necessary for altruism. They also learned to be proactive and act beforehand to ensure that rules are followed and that no unnecessary concerns or troubles are caused to relevant others. From their extracurricular activities, pharmacists in the former four-year cohort also learned about understanding others, giving priority to others, rather than merely to oneself, and being considerate of others’ feelings.

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Regarding “recognition of others,” 6Yr cohort pharmacists spoke mainly of extracurricular activities as having been a spur to their change of self-awareness, and of having actually changed their self-awareness over time. For example, serving as committee members in their club activities and pharmacy faculties activities gave them experience in planning and implementing events, and fostered in them a budding sense of leadership as they communicated with fellow members and enjoyed fruitful relationships. One method of forging trusting relationships with others was through actually changing themselves. Furthermore, by raising the thresholds of things that they were able to do themselves, they became able to observe their surroundings and efficiently induce others to act. This brought a sense of balance to their relationships, that is, between themselves and others. Pharmacists in the former 4Yr cohort spoke mainly of their awareness (cognizance) of others. They learned the concept of service from their extracurricular activities in part-time work, and acquired a sense of hospitality, necessary in their dealings with patients in healthcare. The concept of healthcare service was fostered through part-time work at a pharmacy, as they came to know the actual status of patients (customers), and acquired the habit of making considerations for their patients; basic needs that healthcare professionals are apt to do. The former 4Yr curriculum pharmacists also indicated that their social activities outside the medical field also helped them to better think and care about others (i.e., they became more conscious of “other people”).

Combining the above-described overall stories in a concept diagram (Fig. 1), one can observe a relationship of mutual linkage between the four categories. This diagram illustrates that even within the same category, subcategories with different concepts were extracted from the 6Yr cohort and the former 4Yr cohort respectively, except in the category of “peer effects.”

3.2.3 *Categories and their storylines*

3.2.3.1 **Identity category**

From the statements that subject pharmacists made about “identity,” many of the pharmacists from the 6Yr curriculum talked about their awareness of self-improvement, through such things as increasing their stock of knowledge and discernment in making their own decisions, etc. Here are some relevant quotations from said pharmacists: “If I didn’t make efforts to study for the National Examination for Pharmacists, then I experienced anxiety about that. Thinking about it, I guess there was this sense that my fellow students were making so much progress, that I would be left behind if I didn’t increase by test-related study pace to move forward” (6Yr, #9). “My extracurricular activities, kind of increased my threshold and broadened my horizon, which made it somewhat easy for me to concentrate. Increasing stocks of knowledge have been very helpful in my interactions with patients” (6Yr, #8). In these and other similar statements, pharmacists opined that their self-growth had fostered an increased awareness of themselves as healthcare professionals (pharmacists). However, the former 4Yr cohort students indicated that social experiences such as part-time work and activities where they became aware of such other faculties as the medical faculty and other activities (such as club activities) led to their increased awareness of themselves as medical professionals (pharmacists): “I still recall today how my social interactions in my part-time job were extremely helpful to me in communications that occurred at various sites when I first went outside the university for practical training” (former 4Yr, #3). “Working part-time, I first learned about hospitality. That’s where I first had the sense that I was offering services to others with a sense of care and concern about them” (former 4Yr, #5). “Since if I didn’t do my practice for my club activities, I knew that that would mess up the harmony of the group, I practiced to make sure that we all stayed at the same level” (former 4Yr, #4).

3.2.3.2 Professionalism category

Comments about “professionalism” by subject pharmacists from the 6Yr curriculum included building human networks that are continuously sustained today. “I realized that I would have to be filling prescriptions by myself, and so I made many personal connections” (6Yr, #8). “As for the human network I established while studying so hard during my days as a pharmacy student, I have successfully integrated it with the network of pharmacist in our pharmacy chain, so we all can share this network” (6Yr, #11). Subject pharmacists also spoke about how their experiences helped them to acquire an attitude of flexibility and adaptability to each set of circumstances, a necessary trait for a healthcare professional. “Since I was dealing a lot with persons older than me and people who were irrational or unreasonable, I became able to deal with situations where encountered with odd patients, or when I would have a strange superior. In short, I learned to be flexible when handling different kinds of people” (6Yr, #7). “I want to respond and act in ways that would also reassure and give security to myself as if I were on the other side” (6Yr, #11). Further, subject pharmacists spoke of experiences that fostered a sense of the weight of responsibility they bore as pharmacists in charge of pharmacy management. They were able to faithfully carry out their own duties and responsibilities while giving others top priority. “Instead of just doing only what you yourself want to do, it’s better to turn to the side of a teacher, one who can foster a ‘can-do’ spirit that is shared by all, equally” (6Yr, #9). If we turn to the former 4Yr cohort, one pharmacist spoke of how their part-time work at a pharmacy taught them how to prepare for activities they would perform as pharmacists: “I inevitably learned about each of the medicines, and I also began to take OTC drugs into consideration” (former 4Yr, #1). Others in this group spoke of how they acquired the elements necessary to work as members of a healthcare team, one that understood their patients, through first understanding others and then adeptly making concerted efforts to make arrangements together to effectively perform each of their respective roles in a coordinated fashion. “So, I’ve done that continuously. For example, the plan-do checking, and so on” (former 4Yr, #2). “I became able to think and be concerned about others” (former 4Yr, #3). “So even if I feel like slacking off or something, I know that any mistake I make will be bad for others as well; so perhaps I learned something like working together and cooperating skillfully” (former 4Yr, #4).

3.2.3.3 Peer effects category

As for peer effects, one pharmacist from the 6Yr group spoke of connections made with friends as follows: “It’s probably because, since most curricula in pharmacy schools were compulsory, we all would get together to study before taking the National Examination” (6Yr, #10). Thus, friendships were deepened, as all worked together to accomplish their common goal of obtaining the qualifications needed to become pharmacists. In addition to the National Exam, friendships were forged through having to pass other tests and exams in their schooling, which they did together, sharing their pains and joys: “six years together is a long time, you know. All of us would talk about the content of our studies, and the best ways to make progress for our futures, and what we wanted to accomplish. Yes, indeed, those ties are really the most special thing” (6Yr, #11). Thus, a shared consciousness was fostered among these students who became special friends and comrades. Meanwhile, subjects in the former 4Yr cohort, actions were performed that increased mutual trust. One such subject pharmacist talked about the proactive attitude developed for interactions with others: “So, all of us or individuals would meet face-to-face and discuss things. We would observe the other person, and say something like, ‘Okay, then I’m leaving this up to you’ or something.” (former 4Yr, #2). To be willing to cooperate with others around them, through their extracurricular activities, subject pharmacists in this group would become aware of others around them, and got into the habit of “getting in step with” (i.e., getting along with) others: “So even if I feel like slacking off or something, I know that any mistake I make will be bad for others as well” (former 4Yr, #4). Furthermore, teaching and learning from peers fostered a sense of mutual respect, while also improving one’s own self-esteem: “I mostly studied with the same group of people, and learned that study where one outputs one’s knowledge is the most effective. Even now I continue to practice this method of teaching others, and also learning from them” (former 4Yr, #6).

3.2.3.4 Recognition of others category

With regard to recognition of others, some pharmacists in the 6Yr cohort spoke of their experiences in extracurricular activities where they served as leaders in planning and implementation: “Making a plan for

my club activities helped me to learn a lot of things, from scratch” (6Yr, #8). “I served as club leader, and I learned the processes of fostering unity in the group” (6Yr, #9). Further, pharmacy students learned from their part-time jobs working at pharmacies how to change themselves to more easily compromise and coordinate with others: “In my part-time work at a drug store, I learned how to adjust my language and way of speaking as needed for each person” (6Yr, #10). “My extracurricular activities increased my thresholds and broadened my horizons. That gives me some opportunities to gain more information and so on when necessary when speaking with patients” (6Yr, #7). Furthermore, the sense of maintaining a balance with their surroundings and others around them was fostered in the extracurricular activities of said pharmacists, as many spoke of the changes that occurred in their self-consciousness and self-awareness: “When a customer speaks to me, I feel that they trust me, and that gives me a good feeling” (6Yr, #11). “From my experiences in my part-time job, I learned to react in different settings by looking for a balance in the actions and thoughts of various people. I think that that clearly is helpful to me in my work at the pharmacy” (6Yr, #7). The ability to change oneself and one’s own way of thinking was learned during their period as a pharmacy student at university. One sees here that they gained an ability to work and adapt once they had graduated and entered society. Pharmacists in the former 4Yr cohort learned from their part-time jobs at a pharmacy how to get to know their patients. “I learned that there are many different kinds of patients and customers. What is left to do is to remember their medicines, no matter what” (former 4Yr, #1). As for consideration of others, one pharmacist spoke of this as follows: “there are different types of patients. For example, some like to talk, while others like to listen. Across the pharmacy counter, I have become able to consider these individually, and that comes from my part-time job experiences, I guess. I am able to grasp the needs of my patients” (former 4Yr, #3). Regarding thinking and caring about other people (i.e., being other-people-centered), it was chiefly heard from pharmacists who graduated from the former 4Yr curriculum that they learned how to recognize and be conscious of others: “It has just become a usual habit for me to think about others” (former 4Yr, #2). The above discussion makes it clear that the utterances (statements) made by pharmacists in the respective 6Yr cohort and former 4Yr cohort differ in regard to the following: “identity,” “professionalism,” “peer effects,” and “recognition of others.” Pharmacists under the 6Yr curriculum were at school for two years longer than pharmacists who studied under the former 4Yr curriculum. This meant that 6Yr curriculum pharmacists had sufficient time to acquire from their “hidden curriculum”—that is, what they gained from their extracurricular activity experiences—a greater self-awareness of their own transformation into professional pharmacists, as well as an understanding of the responsibilities that came with being a professional pharmacist. Said 6Yr curriculum pharmacists also had lengthier times to gain peer support from their friends, etc. In the face of their tough and potentially negative daily regimen of taking tests and preparing for the National Examination, they had enough time to cooperate and work together, thereby overcoming these difficulties, and foster a positive attitude. In this atmosphere of peer support, they came to recognize the importance of others in this study, and this atmosphere fostered an awareness in them of the importance of making linkages and forging relationships with other people. This longer term exposure enabled these students to acquire the elements essential for them to become professional pharmacists.

4. Discussion

The former 4Yr cohort (63.3%) and the 6Yr cohort (71.3%) stated in the quantitative survey that the extracurricular activities of their student life had been helpful in performing their responsibilities as pharmacists. (Here, these are respective response rates to the question item “Were the things you learned in the extracurricular activities you experienced at your pharmacy schools helpful to you in performing your responsibilities as a pharmacist?”) From these results, we were able to surmise that these pharmacists had gained experiences from their extracurricular activities that were valuable for them in becoming pharmacists. This suggests the importance for pharmacy students of pursuing extracurricular activities.

Results were as follows for the qualitative research interview question regarding the specific content of extracurricular activities (clubs, student groups, part-time jobs, etc.) and habits that were helpful for these former students in performing their responsibilities as pharmacists. (Here are responses to the question in the second, qualitative study, “Why did you evaluate your extracurricular activities as being helpful?”) Here, four specific factors were hypothesized from interview results: “identity,” “professionalism,” “peer effects,” and “recognition of others.” We successfully confirmed that a “hidden curriculum” for pharmacy

students in their daily university-era lives did, in fact, exist, in the form of processes that helped to foster an identity in these students these patients as healthcare professionals (pharmacists). Considering the above four concepts that emerged from the statements of pharmacists, both pharmacists who graduated under the former 4Yr curriculum and pharmacists who graduated under the 6Yr curriculum were constantly aware of themselves as pharmacists because of their experiences in part-time jobs. Especially in part-time work at a pharmacy, they handled drugs (pharmacy agents), and they performed services for visitors to the pharmacy (i.e., pharmacy customers). This gave them insights that helped them to pass the National Examination and led them to think about things in terms of their own futures as pharmacists. Characteristic of the former 4Yr cohort was their self-awareness as healthcare professionals, as they maintained contacts with the people around them and showed that, through constant concern about the welfare, etc., of others, they could also change themselves. Here, it is to be remembered that under the former four-year curriculum, students in the pharmacy faculty had fewer opportunities to perform clinical training. Instead, opportunities for interactions with others often came from their experiences in extracurricular activities. Since the 4Yr period for students was relatively short, importance was placed on understanding other people. Meanwhile, pharmacists in the 6Yr cohort fostered and improved their own abilities, even while keeping strong contacts with the people around them. It is thus thought that in cases of a 6Yr undergraduate curriculum, importance is placed on gaining the ability to cooperate and work together with others based on their extracurricular activities, as students have ample time and opportunities to learn how to understand others. These experiences and abilities are also thought to have led to their increased self-awareness as healthcare professionals.

This study found that both groups were aware of their surroundings through relationships and interactions with others, and that they had acquired the skills necessary to become pharmacists thanks to their extracurricular activities, through which they had formed habits of thinking, acting, cooperating with others in their environment (for example, studying together for regular university tests and for the National Examination), as well as acts that involved kindness and thoughtfulness (such as working in cooperation with others). These made it easier for pharmacy students to become altruistic and develop a sense of responsibility for providing explanations, concepts of professionalism that helped the pharmacy students prepare for their future careers as pharmacists. Kolb¹⁶⁻¹⁷ proposed an experiential learning model that depicts a cycle of experience, reflection, conceptualization, and experimentation. This model stresses the importance for deep learning of concrete experiences and reflection on these experiences. Through clinical training, the pharmacy student experiences team medicine and learns to take responsibility for patient pharmacotherapy. This results in repeated self-reflection and conceptualization that will enable the pharmacist to apply her experiences to her subsequent tasks, leading to an improved cycle of experimentation. This is why extracurricular activities in which students willingly participated, including part-time work and club activities, etc., were important also in terms of education, and these experiences can be said to have had substantial learning effects. As with the theory of “legitimate peripheral participation” of Lave and Wenger,¹⁸ in part-time work or club activities that one is experiencing for the first time, one is unable at first to keep up with the necessary knowledge and experiences. However, learning by working together with friends and senior members gradually fosters greater self-awareness and responsibility, which leads to growth. According to this theory, then, mentors and friends are essential. When encouraged to participate in an actual site outside of the curriculum, a student can develop into a “joint participant,” as they change themselves by means of the confidence and self-will they have gained through their extracurricular experiences. In the interviews with pharmacists and in their questionnaire forms, it became clear that their extracurricular activities were of great importance even to their work and attitude as pharmacists, as they grew in self-responsibility and self-awareness as pharmacy professionals from said activities. The reasons are as follows. First, the daily exposure to the environment they were placed in as pharmacy students molded them into pharmacists without them being consciously aware of it. They then searched for ways in which they could best contribute to society and considered that said extracurricular experiences allowed them to search for and find methods to make their desired contributions. Fostered at the same time was a concomitant self-awareness of their responsibilities and duties to their fellow citizens as medical care professionals.

As for future issues, the concepts of “research” and “entrepreneur,”¹⁹ two roles of the Nine-Stars Pharmacist set forth by the International Pharmaceutical Federation, were not extracted from the present surveys. This is because of the few opportunities that pharmacy students have in the current pharmacist edu-

cation environment to come into contact with the “research mind” and the “entrepreneurial mind.” For future pharmacists worldwide, fostering necessary research and business (management) abilities is recommended. Unfortunately, however, pharmacy students have almost no chance to meet and interact with pharmacists dedicated to clinical research, or pharmacists who have management experience, such as running a pharmacy, etc., within the current framework of extracurricular activities. It is thus possible that students are not able to become conscious of research and management skills in regard to their future work as pharmacists. It is thought, then, that one challenge for pharmacist education in Japan is the creation of an environment wherein becoming a Nine Stars Pharmacist is a goal.

5. Conclusion

The study results make clear that the training (habits, self-awareness, attitudes, and stances, etc.) acquired from the experience of extracurricular activities during student life at a pharmacy school were helpful in the work of a pharmacist. As for what was specifically helpful, these were environment-related, such as the experiences students gained from part-time jobs, club and pharmacy faculties, etc., as well as bonds that they formed when working together with fellow students to pass regular university tests and the National Examination for Pharmacists. All of these were necessary in fostering the professionalism required by a healthcare specialist (pharmacist). The above shows that activities experienced by pharmacy students in their “hidden curriculum” played key roles in the processes of building the self-awareness and sense of responsibility required for a pharmacist.

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