New Love in Homes:

Exploring the Attitudes of New Young-Olds in Taiwan towards Electronic Pets

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Abstract: Similar to many developed countries; Taiwan has its problem of ageing populations also. According to statistics released by the Taiwan government, the population that aged 65 or more has reached 11.3% in Taiwan by the end of June 2013. This figure has far exceeded the threshold of being an ageing society, which is 7% according to the UN. In addition, the average retirement age in Taiwan has also dropped to 57.1 in 2011. These retiring elders who currently aged 49 to 67 are “Baby Boomers”. People of this age group were much better educated and wealthier than their previous generations. In order to distinguish them from their previous generations, they were defined as “New Young-Olds” in this research. For the purpose of facilitating a smoother transformation into retirement life for the New Young-Olds, this study initiated an exploration on their attitudes and needs towards electronic pets. It is hope that new possibilities for a happier retirement of the New Young-Olds and new opportunities for the electronic industry in Taiwan might be found here. Therefore, a questionnaire survey was conducted during August to September in 2013; with 396 valid respondents, the survey result showed that the respondents can accept electronic pets much better than their previous generation. Further explorations for the specific needs of the New Young-Olds towards electronic pets were also done to find out suggestions of product development strategies for the electronic industry in Taiwan.

Keywords: ageing society, Baby Boomers, New Young-Olds, electronic pets, happier retirement.

1. INTRODUCTION

The problem of ageing population had emerged in many developed countries in recent years for two reasons: Firstly, the high birth rate after the World War II that created the baby boom has dropped down reversely as the economy went on its way of development. Secondly, the standard of medical care was improving concurrently with the economic development. According to the “Static Statistics of Population by Age Group” released by the Directorate General of Budget,

Accounting and Statistics (DGBAS) of Executive Yuan (www.dgbas.gov.tw), the composition of ageing population has been reached 11.3% by June 2013 in Taiwan. This figure has far exceeded the threshold of being an ageing society, which is 7% according to the definition set by the UN.

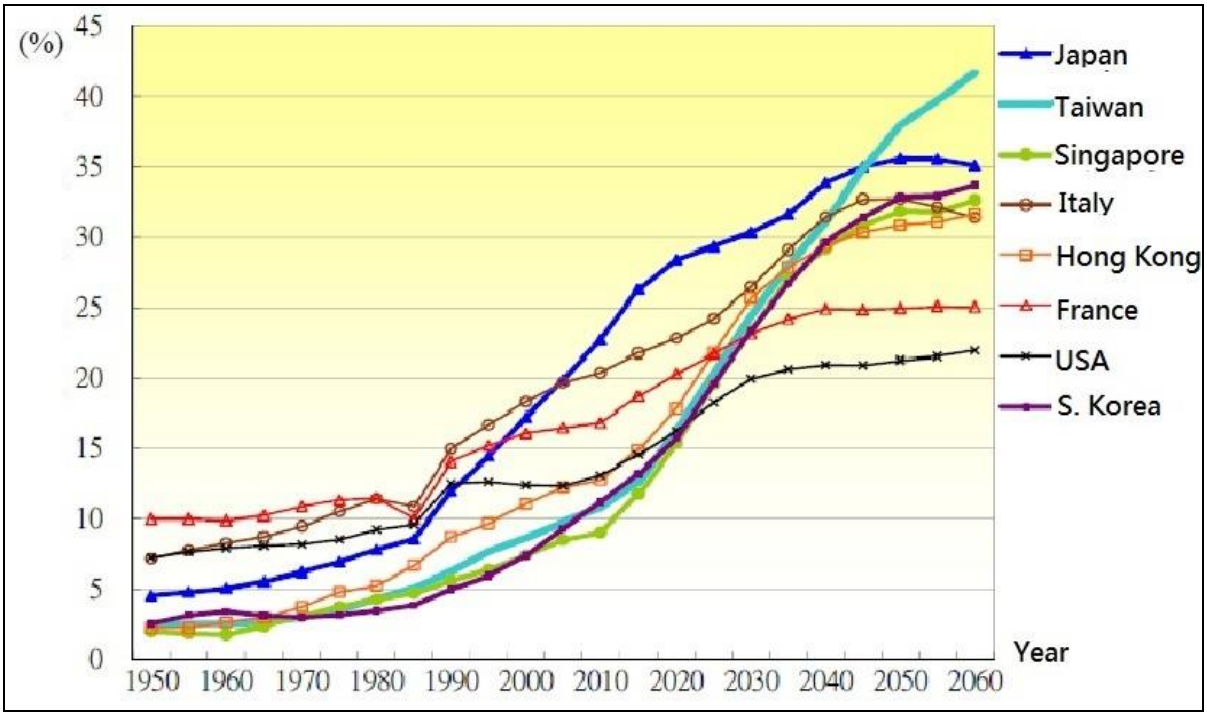


Figure 1: International comparison between the composition of ageing population
(Source: Lou & Fan, 2010)

The newly retired or potentially retiring Young-Olds who currently aged between 49 and 67 are "Baby Boomers". This demographic group is characterized with much better education level and economic wellbeing than their previous generations because of the postwar economic development in many countries. In order to distinguish from "Young-Olds" who were aged 65~74, those who aged 55~64 currently were defined as "New Young-Olds" in this research. For the purpose of facilitating a smoother transformation through the embarrassing years of dramatic change in their social status, and finding new possibilities for happier retirement of these New Young-Olds, this study initiates an exploration on their attitudes and preferences towards electronic pets, in the hope of finding evidences that electronic pets can make their life better. If this assumption can be proven, then new opportunities may also be found here for the electronic industry in Taiwan.

Following these research objectives, a questionnaire survey was conducted among "Young-Olds" and "New Young-Olds" during August to September in 2013; with 396 valid respondents, the result showed that New Young-Olds can indeed accept electronic pets much better than their previous generations. Further explorations for their specific needs and preferences towards electronic pets were also done in this study to find out suggestions of product development strategies for the electronic industry in Taiwan.

2. LITERATURE REVIEW

2.1. Defining "New Young-Olds"

Neugarten (1974) was the first researcher who argued that the demographic group of "old age"

needed to be further differentiated into “Young-Old” and “Old-Old”, by which she defined the former group as aged 65~74 and the latter as aged 75~84. In this study, she created the term “Young-Old”, which later became a widely adopted terminology denoting a generation of aged people who are “not as old” as their former generation.

In addition, it is accepted that Baby Boomers were born between 1946 to1964; thus they are aged 49 to 67 in 2013. Since the Young-Olds are aged 65~74 (Neugarten, *ibid.*), the author held that there is a need to separate the group who are born within the core decade of baby boom period and aged 55~64 at the time of this study. This age-group is different from their previous generations for the high economic development in their early years. This background had effectively enhanced their education level and made their values much more adaptive to various contemporary advancements, especially gadgets that utilizing advanced technologies such as electronic pets. Therefore, this study had defined the age group that aged 55-64 currently as “New Young-Old”.

2.2. The Concept of Active Ageing

In coping with the problem of unemployment for people in their mid and later life due to policies of early retirement, Davey (2002) pioneered in putting forward the idea of “active ageing”. Following Davey’s concept, the WHO (2002) adopted this idea and published the policy framework of “active ageing”, in which the term was defined as “the process of optimizing opportunities for health, participation and security in order to enhance the quality of life as people age”. In this definition, there are three points that consisted of its theme; they are “health, participation and security”. It also emphasized that improving the health and wellbeing of elders will not only be good to the aged themselves, but will also be good to the macro-economy.

3. METHODOLOGY

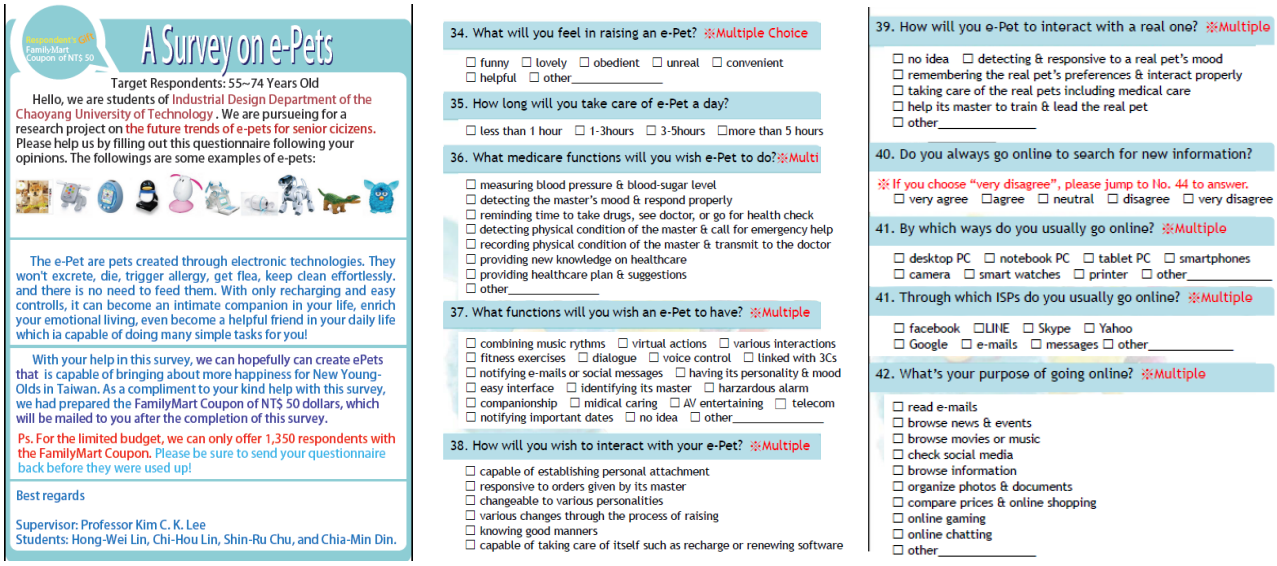
3.1. Research Orientation

In order to achieve the goals of life quality enhancement for ageing population, i.e. “health, participation and security” according to the WHO policy framework (*ibid.*) mentioned earlier, the researcher held that well designed electronic pets would be very much advantageous for such a fulfillment. Therefore, this research was set out to find the evidence that the group of New Young-Olds is very different from the previous generation in terms of their acceptance towards electronic gadgets. In order to gather and analyze the attitudes and preferences of New Young-Olds in Taiwan towards electronic pets, the method of questionnaire survey was adopted for this research. It is also hoped that the results of this research could offer helpful references for the electronic industries in Taiwan to figure out their product development strategies in this field.

3.2. Creating Questionnaire

For the purpose of reaching a wider scope of targeted respondent group to enhance the reliability of this survey, the questionnaire was designed in two versions. Initially, an online version was designed for use in an online survey, and a secondary version was created in WORD format for uses in both e-mails and printouts. The questions had covered topics of lifestyle, values, attitudes, consumer behavior, preferences, needs, requirements, and key emotional design factors concerning electronic pets, and also background factors of respondents were included. However, in order to comply with the limit of paper length of this conference, only the survey results of consumer preferences, needs, and requirements were reported in this paper. Furthermore, as

there are four categories of electronic pet, i.e. the types of hi-tech toy, smart-action, entertainment appliance, and virtual interaction (Chen, 2007), the acceptance of these four types of electronic pets was also explored. There were 59 questions originally, later downsized to 30 questions in 12 pages following suggestions from the test respondents, with an incentive of 50 Taiwan dollars of convenient store coupon for each respondent. The Figure 2 below shows a sample of the first three pages of this questionnaire.



A Survey on e-Pets

Target Respondents: 55~74 Years Old

Hello, we are students of Industrial Design Department of the Chaoyang University of Technology . We are pursueing for a research project on the future trends of e-pets for senior cicizens. Please help us by filling out this questionnaire following your opinions. The followings are some examples of e-pets:

The e-Pet are pets created through electronic technologies. They won't excrete, die, trigger allergy, get flea, keep clean effortlessly. and there is no need to feed them. With only recharging and easy controlls, it can become an intimate companion in your life, enrich your emotional living, even become a helpful friend in your daily life which ia capable of doing many simple tasks for you!

With your help in this survey, we can hopefully can create ePets that is capable of bringing about more happiness for New Young-Olds in Taiwan. As a compliment to your kind help with this survey, we had prepared the FamilyMart Coupon of NT$ 50 dollars, which will be mailed to you after the completion of this survey.

Ps. For the limited budget, we can only offer 1,350 respondents with the FamilyMart Coupon. Please be sure to send your questionnaire back before they were used up!

Best regards

Supervisor: Professor Kim C. K. Lee
Students: Hong-Wei Lin, Chi-Hou Lin, Shin-Ru Chu, and Chia-Min Din.

34. What will you feel in raising an e-Pet? ※Multiple Choice
☐ funny ☐ lovely ☐ obedient ☐ unreal ☐ convenient
☐ helpful ☐ other_____

35. How long will you take care of e-Pet a day?
☐ less than 1 hour ☐ 1-3hours ☐ 3-5hours ☐more than 5 hours

36. What medicare functions will you wish e-Pet to do?※Multi
☐ measuring blood pressure & blood-sugar level
☐ detecting the master's mood & respond properly
☐ reminding time to take drugs, see doctor, or go for health check
☐ detecting physical condition of the master & call for emergency help
☐ recording physical condition of the master & transmit to the doctor
☐ providing new knowledge on healthcare
☐ providing healthcare plan & suggestions
☐ other_____

37. What functions will you wish an e-Pet to have? ※Multiple
☐ combining music rythms ☐ virtual actions ☐ various interactions
☐ fitness exercises ☐ dialogue ☐ voice control ☐ linked with 3Cs
☐ notifying e-mails or social messages ☐ having its personality & mood
☐ easy interface ☐ identifying its master ☐ harzardous alarm
☐ companionship ☐ midical caring ☐ AV entertaining ☐ telecom
☐ notifying important dates ☐ no idea ☐ other_____

38. How will you wish to interact with your e-Pet? ※Multiple
☐ capable of establishing personal attachment
☐ responsive to orders given by its master
☐ changeable to various personalities
☐ various changes through the process of raising
☐ knowing good manners
☐ capable of taking care of itself such as recharge or renewing software

39. How will you e-Pet to interact with a real one? ※Multiple
☐ no idea ☐ detecting & responsive to a real pet's mood
☐ remembering the real pet's preferences & interact properly
☐ taking care of the real pets including medical care
☐ help its master to train & lead the real pet
☐ other_____

40. Do you always go online to search for new information?
※ If you choose "very disagree", please jump to No. 44 to answer.
☐ very agree ☐agree ☐ neutral ☐ disagree ☐ very disagree

41. By which ways do you usually go online? ※Multiple
☐ desktop PC ☐ notebook PC ☐ tablet PC ☐ smartphones
☐ camera ☐ smart watches ☐ printer ☐ other_____

41. Through which ISPs do you usually go online? ※Multiple
☐ facebook ☐LINE ☐ Skype ☐ Yahoo
☐ Google ☐ e-mails ☐ messages ☐ other_____

42. What's your purpose of going online? ※Multiple
☐ read e-mails
☐ browse news & events
☐ browse movies or music
☐ check social media
☐ browse information
☐ organize photos & documents
☐ compare prices & online shopping
☐ online gaming
☐ online chatting
☐ other_____

Figure 2: Sample of the questionnaire (translated for this paper)

3.3. Conducting Surveys

This survey was conducted between August and September in 2013. The online questionnaire was posted on the survey website called "MySurvey" (http://www.mysurvey.tw/). The researcher also sent 146 emails and 675 Facebook messages to urge friends to help directly and further redirecting the e-mail or message to their friends and suggest them to help as well. For those respondents who were not convenient in using the online questionnaire, printout version of questionnaires were also delivered. There was a total amount of 961 copies mailed out. In order to keep the project schedule on time, the replies were cutoff at mid-September. The online survey got 301 replies, with 207 valid respondents among them. In addition, there were 241 replies of the printout version, with 190 valid respondents obtained. Therefore, the total number of valid respondents was 396. As the total population of those who aged from 55 to 74 in Taiwan is 4,418,234, the marginal error was ±4.925% under the confidence level of 95%; thus the survey results were valid for doing further research analyses. There were two ways for screening valid respondents. Initially, the age of respondents were checked, only those who fell into the range of 55-74 were taken as valid. Then the answers to a test question hidden in a series of attitude measurement questions were examined. Since the test question was "I did not pay attention to read the questions before I tick any answer", hence any respondent who answered "Strongly agree" or "Agree" to this question was considered as invalid. The rate of replied questionnaire and the rate of valid respondents were shown in Table 1.

Table 1: The rate of replied questionnaire and the rate of valid respondents

Category	Delivered	Replied	Invalid by Age Group	Invalid by Test Question	Valid Respondents	Valid Rate
Online Questionnaire	821	301	68	27	206	28.41
Printout Questionnaire	961	241	17	34	190	19.77
Total	1782	542	85	61	396	23.49

3.4. Analyzing Survey Results

3.4.1. The Acceptance of Four Types of Electronic Pets

In order to assess the acceptance of the four categories of electronic pet for the reference of electronic industries in the formulation of product strategies, all optional answers in the questionnaire were categorized according to their relevance with these four categories of electronic pet; then on the replied questionnaires, the number of ticked options were counted manually, summed up, and calculated with the following formulas:

(1) ticking rate (acceptance) = actual number of ticking ÷ maximum number of ticking ×100%

(2) maximum number of ticking = number of options in the category × number of valid respondents

According the survey results indicated in Table 2 below, the acceptance of the four categories of electronic pet among all respondents was almost equally well. Therefore, it was concluded that these four categories of electronic pet should all be allocated with similar degree of efforts in terms of product development.

Table 2: The acceptance of four types of electronic pets

Types of Electronic Pets	Number of Options in the Category	Actual Number of Ticking	Maximum Number of Ticking	Ticking Rate (%)
Hi-Tech Toy	20	2367	7920	29.9
Smart-Action	30	3738	11880	31.5
Entertainment Appliance	40	3931	15840	24.8
Virtual Interaction	36	4207	14256	29.5

3.4.2. Preference of Functions of Electronic Pets

In order to study the respondents' preference of functions of electronic pets, nine options of possible functions were presented in this question, as shown in Table 3. The survey results indicated that the four groups of respondents had all ranked their preferences a little bit differently. In summing these results up, the ranking of the top five choices among them can be put into the following order: (1) Showing pleased gesture at caresses of its owner. (2) Learning the teachings of its owner. (3) Having lovely appearance and facial expressions. (4) Adapting to personalities as its owner's wish. (5) Moving around happily.

Table 3: The preference of functions of electronic pets

Preference of Functions	Male				Female			
	55-64	%	65-74	%	55-64	%	65-74	%
Learning the teachings of its owner.	88	14.55	28	19.18	48	11.54	20	16.67
Moving around happily.	70	11.57	15	10.27	57	13.70	13	10.83
Adapting to personalities as its owner's wish.	72	11.90	17	11.64	43	10.34	19	15.83
Showing pleased gesture at caresses of its owner.	95	15.70	19	13.01	68	16.35	12	10.00
Having lovely appearance and facial expressions.	83	13.72	16	10.96	59	14.18	11	9.17
Greeting its owner everyday warmly.	68	11.24	16	10.96	48	11.54	15	12.50
Pleasing its owner by lovely gestures.	48	7.93	16	10.96	38	9.13	19	15.83
Exercising or playing together with its owner.	56	9.26	11	7.53	45	10.82	3	2.50
Playing games with its owner.	25	4.13	8	5.48	10	2.40	8	6.67
Total	605	100	146	100	416	100	120	100

3.4.3. Preference of the Weight of Electronic Pets

For the investigation of the respondents' preference of the weight of electronic pets, three options were presented in this question resembling the weight of mineral water in daily use for easier differentiation, as shown in Table 4. The survey results showed a clear and identical preference among the four groups of respondents towards the weight that is similar to a bottle of mineral water of 600 c.c. capacity.

Table 4: The preference of the weight of electronic pets

Preference of the Weight	Male				Female			
	55-64	%	65-74	%	55-64	%	65-74	%
The weight of a 600 c.c. bottle of mineral water.	116	63.39	28	71.79	113	11.54	20	62.50
The weight of a 1500 c.c. bottle of mineral water.	62	33.88	8	20.51	26	13.70	11	34.38
The weight of a 5000 c.c. bottle of mineral water.	5	2.73	3	7.69	3	10.34	1	3.13
Total	183	100	39	100	142	100	32	100

3.4.4. Preference of Sizes of Electronic Pets

For the investigation of the respondents' preference of sizes of electronic pets, five options were presented in this question resembling the sizes of different balls in common use for easier

differentiation, as shown in Table 5. The survey results showed the four groups of respondents had ranked their preferences a little bit differently in terms of gender. It seems that the preference of females was smaller than males. To rank the top two choices among them collectively, they can be ordered as: (1) The size of a volleyball ball, and (2).The size of a softball.

Table 5: The preference of sizes of electronic pets

Preference of Sizes	Male				Female			
	55-64	%	65-74	%	55-64	%	65-74	%
The size of a baseball.	46	25.14	8	20.51	46	32.39	8	25.00
The size of a softball.	47	25.68	11	28.21	49	34.51	6	18.75
The size of a volleyball ball.	68	37.16	14	35.90	28	19.72	12	37.50
The size of a basketball.	19	10.38	5	12.82	17	11.97	6	18.75
The size of a yoga ball.	3	1.564	1	2.56	2	1.41	0	0
Total	183	100	39	100	142	100	32	100

3.4.5. Preference of Operational Interfaces of Electronic Pets

In terms of determining the respondents' preference of operational interfaces of electronic pets, seven options were presented, as shown in Table 6. The survey results showed the first choice of the four groups of respondents were all ranked as "voice control". Although the second and the third choices seemed to be different slightly from each other, they can be ordered as the followings while ranking them collectively: (2) touch control / highly automatic (equal between the two), and (3) mobile phone apps.

Table 6: The preference of operational interfaces of electronic pets

Preference of Operational Interfaces	Male				Female			
	55-64	%	65-74	%	55-64	%	65-74	%
Remote Control	10	5.49	5	12.82	9	6.34	2	6.25
Touch Control	28	15.38	10	25.64	34	23.94	4	12.50
Voice Control.	85	46.70	11	28.21	73	51.41	13	40.63
Highly Automatic.	31	17.03	10	25.64	9	6.34	2	6.25
Internet Control.	6	3.30	0	0	1	0.70	0	0
Mobile Phone Apps	14	7.69	0	0	11	7.75	10	31.25
With Body Gesture	9	4.92	3	7.69	5	3.52	1	3.13
Total	183	100	39	100	142	100	32	100

3.4.6. Needs for Futuristic Functions of Electronic Pets

This question was created in order to predict the respondents' needs for futuristic functions of electronic pets in the four groups of different ages and genders. Twenty-one options of descriptions of futuristic functions were presented here, as shown in Table 7. The survey results indicated that the four groups of respondents had all ranked their first choice of futuristic function as "Monitoring health conditions", and also the agreed second choice as "Remote connections with medical institutions". This result indicated a strong need of automatic and remote health monitoring and connecting capabilities. However, the other futuristic function needs of the four groups of respondents presented a little difference to each other. In summing these results up, the ranking of the top six choices among them can be put into the following order: (1) Monitoring health conditions.

Table 7: The needs for futuristic functions of electronic pets

Needs for Futuristic Functions	Male				Female			
	55-64	%	65-74	%	55-64	%	65-74	%
Going online and browsing information.	32	5.19	8	4.73	26	5.78	2	1.43
Making visual phone calls.	35	5.67	8	4.73	23	5.11	8	5.71
Monitoring health conditions.	**93**	**15.07**	**18**	**10.65**	**93**	**20.67**	**18**	**12.86**
Remote connections with medical institutions.	62	10.05	8	4.73	36	8.00	16	11.43
Smart digital secretary.	34	5.51	4	2.37	21	4.67	1	0.71
Rich in interactive capability.	38	6.16	11	6.51	19	4.22	6	4.29
Virtual interactive games.	21	3.40	11	6.51	17	3.78	5	3.57
Combining with various 3C products.	22	3.57	8	4.73	17	3.78	6	4.29
Behavior simulations capability.	36	5.83	7	4.14	11	2.44	5	3.57
Dialogue capacity with its owner.	40	6.48	9	5.33	28	6.22	10	7.14
Smart learning capability.	40	6.48	9	5.33	28	6.22	7	5.00
Long battery durability.	23	3.73	9	5.33	13	2.89	12	8.57
Information browsing and provision.	5	0.81	4	2.37	6	1.33	1	0.71
Raising and growing capacity for its owner.	7	1.13	3	1.78	2	0.44	8	5.71
Aiding social activities of its owner.	7	1.13	2	1.18	10	2.22	2	1.43
Playing games with real pets.	25	4.05	12	7.10	13	2.89	10	7.14
Nimble and agile enough to follow up its owner.	18	2.92	10	5.92	22	4.89	9	6.43
Night vision capability.	18	2.92	7	4.14	13	2.89	2	1.43
Reading out aloud and translation ability.	18	2.92	7	4.14	13	2.89	2	1.43
Automatic recharge capability.	31	5.02	12	7.10	23	5.11	8	5.71
Exercise companionship capability.	12	1.94	2	1.18	16	3.56	2	1.43
Total	6	100	169	100	450	100	140	100

(3) Remote connections with medical institutions. (3) Dialogue capacity with its owner. (4) Smart learning capability. (5) Rich in interactive capability, and (6) Behavior simulation capability.

3.4.7. Needs for Futuristic Life Impacts of Electronic Pets

This question was devised in order to predict the respondents' needs for futuristic life impacts of electronic pets. Twelve descriptions of futuristic life impacts were provided here as options, as shown in Table 8. The survey results indicated that the four groups of respondents had all ranked their top four choices of futuristic life impacts slightly different to each other. In summing these results up, the ranking of the top six choices can be put into the following order: (1) Automatic connection for first-aid in emergencies. (2) Enrich fun and happiness in life. (3) Automatic health monitoring. (4) Remote connections with medical institutions. (5) A reminder for important dates and activities, and (6) A major emotional attachment.

Table 8: The needs for futuristic life impacts of electronic pets

Needs for Futuristic Life Impacts	Male				Female			
	55-64	%	65-74	%	55-64	%	65-74	%
Enrich fun and happiness in life.	85	14.24	14	10.77	48	10.98	12	13.04
Enhance fun and happiness between friends.	31	5.19	8	6.15	26	5.95	3	3.26
Enhance interactions between friends.	45	7.54	5	3.85	28	6.41	10	10.87
Remote connections with medical institutions.	66	11.06	7	5.38	50	11.44	10	10.87
Automatic connection for first-aid in emergencies.	81	13.57	17	13.08	59	13.50	10	10.87
Automatic health monitoring.	69	11.56	9	6.92	53	12.13	15	16.30
A major emotional attachment.	36	6.03	15	11.54	27	6.18	1	1.09
A reminder for important dates and activities.	53	8.88	12	9.23	53	12.13	10	10.87
A family visual connection hub.	27	4.52	8	6.15	19	4.35	11	11.96
A living information center.	37	6.20	13	10.00	31	7.09	1	1.09
Enhance memory and reaction capacity.	33	5.53	13	10.00	20	4.58	6	6.52
Enhance health and confidence.	34	5.70	9	6.92	23	5.26	3	3.26
Total	597	100.0	130	100.0	437	100.0	92	100.0

3.4.8. Preferred Type of Games of Electronic Pets

In order to explore the respondents' preferred type of games of electronic pets, nine options were provided as shown in Table 9. The survey results showed the top three choices of the four groups of respondents were all ranked identically as follows: (1) Brain power games (2) Rhythmic games, and (3) Games of body gestures.

Table 9: The preferred type of games of electronic pets

Preferred Type of Games	Male				Female			
	55-64	%	65-74	%	55-64	%	65-74	%
Games of Body Gestures	52	13.94	9	10.74	23	9.43	7	12.73
Adventurous Games	38	10.19	5	5.95	10	4.10	4	7.27
Brain Power Games	88	23.59	24	28.57	84	34.43	14	25.45
Strategic Business Games	21	5.63	4	4.76	17	6.97	5	9.09
Roleplaying Games	29	7.77	7	8.33	13	5.33	1	1.82
Sports Games	29	7.77	7	8.33	13	5.33	1	1.82
Rhythmic Games	50	13.40	13	15.48	46	18.85	10	18.18
Raising and Growing Games	30	8.04	9	10.71	16	6.56	3	5.45
No Idea	36	9.65	6	7.14	22	9.02	10	18.18
Total	373	100	84	100	244	100	55	100

3.4.9. Preferred Healthcare Functions of Electronic Pets

Table 10: The preferred healthcare functions of electronic pets

Preferred Healthcare Functions	Male				Female			
	55-64	%	65-74	%	55-64	%	65-74	%
Monitoring blood pressure and blood sugar.	91	16.73	22	17.89	68	17.66	19	19.19
Detect the owner's mood and response properly.	83	15.26	23	18.70	58	15.06	10	10.10
Reminder of visiting doctors, health checking, and the tine of taking medicines.	98	18.01	24	19.51	75	19.48	20	20.20
Monitoring physical conditions and connect for first-aid in emergencies.	106	19.49	21	17.07	61	15.84	19	19.19
Record physical conditions and send to the family doctor automatically.	67	12.32	13	10.57	46	11.95	14	14.14
Presenting knowledge on keeping good health.	60	11.03	15	12.20	52	13.51	12	12.12
Providing consultations on health enhancement.	38	6.99	5	4.07	25	6.49	5	5.05
Others	1	0.18	0	0	0	0	0	0
Total	544	100	123	100	185	100	99	100

This question was aimed at uncovering the respondents' preferred healthcare functions, seven options provided here, as shown in Table 10. The survey results showed the top three choices of

the four groups of respondents were all ranked identically as follows:
(1) Reminder of visiting doctors, health checking, and the tine of taking medicines.
(2) Monitoring physical conditions and connect for first-aid in emergencies, and
(3) Monitoring blood pressure and blood sugar.

4. RESEARCH FINDINGS

4.1. Acceptance of Electronic Pets

The survey results showed that electronic pets can hopefully be well accepted by New Young-Olds in Taiwan. In addition, the four categories of electronic pets, i.e. the types of hi-tech toy, smart-action, entertainment appliance, and virtual interaction can all be accepted equally well.

4.2. Needs and Requirements of Electronic Pets

4.2.1. Preferred Functions

The preferred functions of electronic pets were ranked in the following order:

(1) Showing pleased gesture at caresses of its owner.
(2) Learning the teachings of its owner.
(3) Having lovely appearance and facial expressions.

4.2.2. Preferred Weight and Sizes

The weight of electronic pets is preferable to be in “light weight”, and its preferred size is between a volleyball ball and a softball.

4.2.3. Preferred Operational Interfaces

The preferred operational interfaces of electronic pets were ranked in the order of voice control, automatic control, touch control, and mobile phone control apps.

4.2.4. Preferred Futuristic Functions

The most expected six futuristic functions of electronic pets can be put into the order as follows: (1) Monitoring health conditions. (2) Remote connections with medical institutions. (3) Dialogue capacity with its owner. (4) Smart learning capability. (5) Rich in interactive capability, and (6) Behavior simulation capability.

4.2.5. Preferred Futuristic Life Impacts

The most envisioned futuristic life impacts of electronic pets can be ranked in the following order: (1) Automatic connection for first-aid in emergencies. (2) Enrich fun and happiness in life. (3) Automatic health monitoring. (4) Remote connections with medical institutions. (5) A reminder for important dates and activities, and (6) A major emotional attachment.

4.2.6. Preferred Type of Games

The preferred type of games of electronic pets were ranked in the following order:
(1) Brain power games, (2) Rhythmic games, and (3) Games of body gestures.

4.2.7. Preferred Healthcare Functions

The preferred healthcare functions of electronic pets were ranked in the order as:
(1) Reminder of visiting doctors, health checking, and the tine of taking medicines.
(2) Monitoring physical conditions and connect for first-aid in emergencies.
(3) Monitoring blood pressure and blood sugar.

4.3. Strategic Considerations of Product Development

The past five decades of development of electronic industry in Taiwan was focused in building technological foundations both in manufacturing and design mainly, so that a world class capacity of product design and development was well established. However, it was a pity that they largely remained at the top of OEM and ODM operational models so far. Such a long stagnation in the same status without proper effort in striving up-stream had in effect eroded the strength that they had earned. Jumping away from the OEM/ODM operational model is surely a long and tough way to go; nonetheless, there will be no chance without beginning. In order to make proper use of the solid foundation established earlier, it is never too late to start.

If there are some Taiwanese electronic industry which will make their endeavor in developing electronic pets, this paper is trying to provide them with some useful references in terms of user requirements. Before any part of these references can be accepted, some suggestions on strategic considerations of product development may play a key role to make it happen. An important strategic thinking to be argued here is that the home market of Taiwan is actually always wasted too easily. For those who had been acquainted with OEM/ODM business, Taiwan market is not even big enough to be a piece of cake; after all, it is impossible to remain in the OEM/ODM business forever. Whenever we find that it is an imperative for us to end this business model, this home market will always be useful enough. Although it is not big indeed, still, our home ground has several merits of being a convenient touchstone for a big market, assuming that we are going to find one by our own efforts. Firstly, it is small but enough to engage in a small test launch of new products. Secondly, it is convenient and completely at our own disposal. Thirdly, the Baby Boomers in Taiwan have many things in common with Baby Boomers in other countries; thus it is not impossible to make inferences of needs and wants between these corresponding groups.

4.4. The Target Market

As mentioned early in this paper, the target market recommended for testing newly developed electronic toys is the group of New Young-Olds. In 2003, the population of this group in Taiwan was 2,970,109. In addition, 46.16% among this population (1,371,002) are high school educated or higher. (Static statistics of population by age group, http://www.dgbas.gov.tw) They not only have good educations, but also have sound career development and sufficient incomes. The most important of all is that they are knowledgeable enough to accept any product based on brand new technologies. Therefore, it is not difficult to sell tens of thousands of products to them, which is an amount good enough for early trial marketing of any independently developed new product.

4.5. Suggestions on Product Strategy

Based on the survey results and the arguments made so far, the following product strategies are provided as reference of an overall direction of product development of electronic pets.

4.5.1. Using Windows of Market

The concept of using windows of opportunities as an entry is an effective way to get into any market. For example, the former section had suggested that Taiwan market can be used for test launches for products that will target at the global market eventually. In this context, Taiwan market is taken as a window of opportunity for the global market. Moreover, this concept can also be applied in a smaller context, e.g., we can take the group of New Young-Olds as a window of opportunity of winning Taiwan market. Furthermore, the context can go even further smaller as to take the group of university graduates among New Young-Olds as a window of opportunity of winning the whole of new Young-Olds.

4.5.2. Social Needs of New Young-Olds

As mentioned earlier, two important characteristics of New Young-Olds are that they are higher educated and well developed in their careers. These two points mean that they have many friends and also their family members. Now that they are approaching their retirement, they are going to see friends, relatives, and family members as more important than ever for satisfying the needs of good interpersonal relationships. Under such a psychological background, if we can develop our electronic pets to have more social assistant functions, then they will be much better accepted by this user group.

4.5.3. Needs of Personal Healthcare

Although the New Young-Olds are still not too old; however, they all know very well that they are becoming old. Hence they will keep in mind to make several preparations and many ways of prevention. On the one hand, they will pay more attentions in ways of keeping better health, and they will also try many ways to arrange things that can be in favor of themselves in case of illness on the other. Therefore, our electronic pets must be equipped with many healthcare capabilities to satisfy these needs. Also, there is one more thing to take care here; i.e. although they need healthcare functions, but they mostly feel shy to make this known for others. Therefore, these functions must be kept in low profiles, or being covered with some kinds of disguise, which will make the user feel more comfortable with it.

5. CONCLUSIONS

Since low mortality rate and low birth rate always happen together, developed countries are inevitable of becoming ageing societies, and there is no exception for Taiwan. In order to make it a happier and healthier ageing or even aged society, this study was aimed at providing a solution to this problem through suggestions of product development strategies of electronic pets. Through a questionnaire survey, the preferences, needs, and requirements of New Young-Olds in Taiwan were explored, and product strategies were suggested. It was found that electronic pets can well be accepted by the New Young-Olds in Taiwan, hope that both the electronic industry and New Young-Olds will be better-off with the helps of this study.

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BIOGRAPHY

The author was an industrial design manager from 1976 to 1997 of SAMPO Corporation, a major home appliances and electronics manufacturer in Taiwan. The team that the author led was a leading design force and an important cradle for training newly graduated industrial designers in Taiwan during that period. In order to extend this experience of training young designers, the author took an early retirement and devoted to design academia at the Industrial Design Department of Chaoyang University in 1997, and earned his PhD degree in Design Management from the University of Leeds in the UK in 2005.