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Abstract

This study is a tiny attempt to phenomenological-psychologically explicate the lived worlds of successful expert Application "*System Engineers*" (to be denoted as Application SEs or ASEs hereafter) in Japan. Simply put, the application SEs are the specialists in computer system engineering, whose job is to build and introduce a new computer-operated system into a business/industry/company. Metaphorically speaking, they are builders of bridges between hitherto unrelated worlds of the computer system engineering technology, on the one hand, and the

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underdeveloped primitive worlds of common everyday life-worlds, on the other. In their jobs, ASEs respond to the needs and requests of a business/industry, which ranges from, for example, fabric, steel, beer or canning factories to super markets, commercial banks and/or insurance companies. The typical need of a business/industry is to have, for its own business purposes, an adequate advanced computer operated system which serves to help or replace the complicated not-yet-computerized system operated mostly by human labor. Upon request of a business/industry, ASEs start their work first by familiarizing themselves with the new business world, which has been entirely unknown to themselves before the encounter occasioned by the request. ASEs will have interviews with the representatives of the business/industry, specialists in their own business/industry world but novices in computer system engineering, in order to listen and to understand what it is to be—and what can be—computer-systematized, such as the system of flows of information, money, documents, materials, products and/or workers. They themselves may also make direct observations of the major sections of the business/industry actually working on the spot (in situ). ASEs then plan the build up of the requested system and organize and supervise the actual building processes of the system, with the cooperation and consultation of all the people concerned, including both computer engineers and novice customers. The work of an ASE is, analogically speaking, that of a combination of a composer of a symphony and a conductor of an orchestral performance of the symphony.

This tiny attempt was initiated when the author was requested, by a group of personnel managers from a dozen system engineering companies, to explicate what is necessary for a computer engineer to be a successful expert ASE (to be denoted as EASE). In the Japanese computer system industry, the supply of EASEs is urgently needed. Some say, approximately a hundred thousand expert EASEs are needed now in the Japanese computer system engineers labor market but it is very hard to fulfil the need. Upon the request by the group, the author planned and carried out detailed interviews of four representative EASEs, who, by their respective companies, were recommended as the most successful and prominent EASEs among their peers. The author summarized the protocols of the interviews into *Individual Phenomenal Descriptions* a la Frederick J. Wertz, and then explicated, in a manner similar to Alfred Schutz's, the lived worlds of these four interviewees to form a summary general statement of the characteristic structure and meanings of their lived worlds.

In short, the study is to see the essential structure and meanings of the lived worlds of successful EASEs, i.e. *Expert Application System Engineers*. Some implications of the explicated structure and meanings will also be elaborated.

Key Words: Phenomenological Psychology, Lived worlds, Expert, Application System Engineer, Narrative.

Introduction

This is "a tiny attempt" to explicate phenomenological-psychologically the structure and meaning of the lived worlds of Application System Engineers (ASE) in Japan. Before we jump into the main themes of this paper, let me digress a little to read a fragment of a poem from "Auguries of Innocence" by William Blake (1757-1827):

To see a World in a Grain of Sand
And a Heaven in a Wild Flower
Hold Infinity in the palm of your hand
And Eternity in an hour.

The idea contained in "To see a World in a Grain of Sand" has much in common with the thought in the Buddhist Sutra (Kegon-kyo, 華厳経) "To see everything in an atom" (「微塵のなかに一切を見る」).

This idea relates to this study at least in three-layered ways. 1) An Application System Engineers attempt to see and build a form, a structure of a system, everywhere he goes, 2) This study attempts to see the structure of the lived worlds of SEs through phenomenologically explicating interviews with them, and 3) I will attempt to invite the audience to see (together with me) the structure of the lived worlds of the excellent Application System Engineers, those who see the structures everywhere. In other words, this tiny attempt itself is supposed to be "a Grain of Sand" for us, you and me.

Phenomenology is, at least for me, the best way leading to going "Beyond the Information Given" (J.S.Bruner), "Hearing just one, know even ten", or "Seeing a leaf falling, know the arrival of the autumn", by seeing and intuiting the essence of phenomena.

Let us pre-suppose what has already been given in the *Abstract*, and let us jump into the result of my attempted phenomenological explication.

Out of one and half hours' interviews each with four Excellent System Application Engineers, I have reached the following explication of the structure and meanings of their lived worlds.

The Structure and Meaning of the Lived Worlds of the Excellent (and Expert) Application System Engineers

In what follows, we will call a *System Engineer* as an "*SE*", an *Application System Engineers* as an "*ASE*". We will call those four ASEs whose stories I have listened to as *Excellent (and EXpert) Application System Engineers* and will designate as "*EASE*"s, since they were selected, upon our request, by their respective companies as pre-eminent among their peers.

I listened to their stories in an attempt to understand their lived worlds and explicate the common structure and meanings of their lived worlds.

An *Excellent Application System Engineer* (EASE) is affirming, with much pride, his ("his/her" to be abbreviated as "his" hereafter) present ways of being, particularly his way of being and working in his own job as an ASE. He "likes" the job of ASE and he enjoys it. This whole affirming positive feeling about his present way of being is due not only to the high evaluation of, and also the high respect accruing to, the job of ASE, which is enjoyed inside and outside of the organizational groups he belongs to (i.e. the extrinsic socio-economical contexts and reasons), but also to the concrete detailed contents of the job activity itself (i.e. the intrinsic contexts and reasons). In other words, the sense of fulfillment underlying his whole life is based not only upon the fullness of the outer horizon of the job but also upon the fullness of the inner horizon of the working activity of the job. The job itself belongs to the world of rapid progress. In his past, the job of the EASE has demanded that he always makes progress and changes himself accordingly, and he has been responding adequately to this demand. This is just the same with his present, and he believes this will be the same with his future too. This world asks him to accept ever new challenges, to undertake tasks unknown to him at the time of encounter. The tasks of the job are to bring order into a seeming "chaos", to give a problem a form, to solve the problem, and actualize the solution as a construction of a new computer operated system. The work requires the ASE to do a new job, to solve a new problem and to actualize the solution as a new computer system. To cling to the successes of the past means, in the world of ASE, his failure as an ASE. Out of the history of the experiences of success and failure in tackling ever new tasks, he has now become to see himself affirmatively as a person who likes to encounter new things, to tackle new tasks, to study new things. He enjoys these new experiences. The underlying this affirmative feeling is not the illusion that he is a superman who never fails. Rather, he is too well aware that, as a human being with a limited capacity, he can not avoid failures at least sometimes, but that these failures themselves are to be experienced as new challenges to be welcomed. He is convinced that he can always continue to learn from, and to overcome, the experiences of failure. He has a confidence and a pride in his own flexibility and tenacity. This awareness, conviction, confidence and pride are all implied in his affirming feeling of himself as an EASE. At the present time as an EASE, his lived world is differentiated into a variety of many sub-worlds ("finite provinces of meaning" in Alfred Schutz's sense), each of which has its own history of a series of various formative experiences. At the center of his lived world, is the world of the EASE's job as a specialist, which has been formed in his personal history of OJTs (On-the-Job Training). Compared with this sub-world, various other sub-worlds are many in number but relatively small in size and meager in content. In this sense, other sub-worlds are not on equal terms with the central sub-world of the ASE's job. Rather, these many sub-worlds are relatively independent among themselves. Each of them is ready to be incorporated into the central sub-world of ASE's job, and contributes to its fertility.

These other sub-worlds are related to the central sub-world of the EASE's job at least in the following five ways.

First, the fundamental ways of the EASE's being (existence) to be fond of new things is permeated into the histories of the genesis and developmental formation of such sub-worlds as various interests other than the central sub-world of the job of ASE. All of these sub-worlds has been formed by the way of being "easy to heat up and to cool off". Every sub-world realizes the way of being "wide and shallow" rather than "narrow and deep", or to be more accurate, being "mostly shallow, only temporarily deep, but always transient and wide" rather than "persistently narrow and deep". Behind each of all the sub-worlds, however unrelated they may seem, is hidden the potential to be related to and incorporated into, at every occasion possible, the sub-world of ASE's job. In the sub-world of the ASE, an ASE is situated under the circumstances where he is not permitted to stay contented with the old familiar ways of the job, and where he is half forced to tackle new tasks and to change himself accordingly. However, an EASE regards the obligation to change, neither negatively nor passively as being forced on him, but both positively and actively as good opportunities for growth, self-development, and self fulfillment. Due to this, he has been able to live the history of growing and surviving as an EASE. Out of this history appears a basic dislike of mannerism and routinization, and a fondness for new things and new changes and of continuing to seek them everywhere. In this sense, the basic characteristics of being "wide and shallow", or "mostly shallow, only temporarily deep, but always transient and wide", in many other sub-worlds could be interpreted and understood as the resulting reappearance in these various sub-worlds of the same being as that of the ASE's job, the being to live a life of constant challenge.

Second, the various sub-worlds of the EASE's lived world become resources in his job for the purpose of understanding, based upon the similarity and/or structural homomorphism, the structures of the world that requires systematization. In other words, the source of "sense and ideas (inspirations)" that makes possible a quick understanding of a new object world by means of modeling and/or metaphors is, the various colorful sub-worlds other than the central sub-world of the job of ASE. This is just the same as, in the world of the job, the content of a particular systematization once engaged and accomplished at a specific period of time would become a source of "sense and ideas" for the content of the next new task of systematization in the future. An experience, in the past, of systematization becomes a model for an experience, in the future, of a new one, by means of similarity, modeling and/or metaphors. An EASE would tend to become keenly aware of this, and consciously makes efforts to positively and inter-relatedly incorporate the past experiences in the various sub-worlds into the central sub-world of the job as an ASE. In the thinking of an EASE, predominant is the tendency to relate the new with the old in terms of the structural similarity more than in terms of the temporal-spatial-contiguity (Roman Jakobson, 1956). In other words,

the main axis of the EASE's thinking is more mathematical and physical than historical and geographical. In this sense, we can understand that the implicit basis of the EASE's abundant and colorful "sense and ideas" is his liking for the beauty of conciseness (succinctness), simplicity, symmetry, hierarchical structures, structuredness, functionality, and so forth.

Third, in the lived world of the SE's job, mutual understanding with others outside of his own company is essential. In this world of his job, he is required to construct a new really functioning system to be introduced into the "chaos" and the old order of the world of the customers, the others outside of his own company. This is done by means of discovering a new order and structure, creating a system out of a dream, and actualizing the dream in reality. Incidentally, the others outside of his company are basically ignorant of systematization itself. This ignorance of the others is the very reason why they become the others to be encountered in his job as his customers in his task of systematization. On the other hand, the ASE himself is basically ignorant of the lived worlds of the others coming from outside of his company, i.e. of his new customers. Thus, the SE and the others from outside of the company start from the state of mutual ignorance of each others' lived worlds, gradually deepen their mutual understanding, and cooperatively move toward the realization of systematization. This whole process constitutes the essence of his job. In this process of reaching mutual understanding, the ASE is required to approach the customer from his side, or at least he is required to take responsibility and show leadership in the process. In this process of deepening their mutual understanding by his leadership, the EASE's living in the various colorful sub-worlds has a positive meaning for his job as an ASE. In other words, that the EASE's lived world consists of many various sub-worlds contributes and gives support; (1) to his efforts in understanding others living in different lived worlds and of eliciting from others the necessary information on matters relevant to systematization, the others being totally ignorant of systematization, and (2) to his efforts in explaining and helping these ignorant others understand what is necessary to facilitate cooperation with him in the task of systematization. This is because at least the following four possibilities increase as the richness of his lived sub-worlds increases; (A) the possibility that past cumulative experiences of entering new sub-worlds become contributive, (B) the possibility of constituting harmonious human relationships with others, whom he meets for the first time and who have come from outside of his company, (C) the possibility that he directly knows the things which belong to the lived worlds of those others, and (D) the possibility that, by means of similarity (and/or models and metaphors), he understands the others' explanations adequately and explains to the others ingeniously. Inferior ASEs could easily be imagined as having less of these possibilities than superior EASEs. With more of these possibilities, an ASE will find the encounters with others outside of his company less painful and more enjoyable regarding them as the precious opportunities leading to and introducing

him to new worlds, all of which contribute positively for his job as an ASE.

Fourth, the work of an ASE can not possibly be accomplished by himself alone. The work is at once to organize, to coordinate, to encourage, and to direct many other people working together in his company, to actualize, as a team of co-workers, the systematization, which "gives form to a dream" and "gives order to chaos". This work, in a sense, can be compared to the work of an orchestra conductor, who prepares and actualizes a performance of a symphony by conducting many organized players. In the process of constructing a complex system, therefore, the ASE must adequately organize the whole process, by grasping and understanding the feelings, thinking, and motives of participant others in the company, i.e., those working under/with him. For this purpose, he must form and maintain good human relations with the others in his company. In this process, his various colorful sub-worlds can function positively just the same way as in his contacts with others outside his company. The EASE can enjoy the encounters with the unknown worlds of the participant others within the company just as he can with the worlds of the others outside. If we understand the general characteristic of "Bildung" ("culture/education"), as H.G.Gadamer (1975) writes, "to keep open to what is other, to other, more universal points of view." and "To distance oneself from oneself and from one's private purposes means to look at these in the way others see them" (p.17). In other words, a person with Bildung is able to see the world and oneself with the eyes of others. Then an ASE is required to have precisely that Bildung. And, again, we may say, an ASE is required to have the "decentering" ability, advocated by the genetic epistemologist J. Piaget.

Fifth, the work of an ASE is to "give form to a dream". The balance and harmony between necessity, possibility and reality is needed. The possibility imagined by an ASE, the dream, must be abundant. An EASE is "fond of" dreaming dreams and indulging in fantasies. However, the demands that come from the reality in which the systematization must be accomplished do not permit him to just indulge in dreams and fantasies. In order to "give form to a dream", various realistic conditions and requirements must carefully and accurately be taken into consideration. Actualization of a dream is under the strict control of necessity. Thus, the ASE must attempt to build a system as a reality, by coordinating between possibility and necessity. To this end, the ASE must be able to see and to consider a single reality as just one possible actualization of innumerable potential possibilities. In other words, the EASE is able to multi-perspectively see a reality in terms of innumerable possibilities (dreams and fantasies). He is able to freely interact with interrelations between possibilities, realities, and necessities. And this enriches his multiple understandings of reality, which makes it possible and easier to develop and activate the adequate "sense and ideas" that are deemed to be necessary for the ASE's job. Here, the whole history of the formation of the lived world consisting of many various colorful sub-worlds is purposefully activated.

In this way, we have found the three constituents (and/or aspects) of the ASE's

work: 1) to systematize the "chaos" and old order of an unknown world into a new order and new structure, 2) to harmoniously coordinate, in the process of systematization, among the often unknown others who are collaborating with him inside and outside of his world, and 3) to bring a reality out of rich possibilities (dreams and fantasies), under the strong constraints of necessity. These three constituents are equally to be seen corresponding to the fundamental being of the EASE, in his lived world, his persistent tendency to seek the new, to accept the new as a challenge, and to like and enjoy overcoming the difficulties and thereby training himself. Among the EASEs, it is pointed out, there are some differences as regards the deep feelings of satisfaction at the completion of systematization: 1) to feel a joy at the joy of others inside and outside of the company, and 2). to feel a joy at the completion of a systematization as a problem solving activity. In the lived world of an EASE, the relative weight of the two kinds of feelings may differ according to the individual, both of these feelings have the possibility, the reality and the necessity to provide the deep feeling of satisfaction to all of the EASEs.

Lastly, every EASE has his own view of what an ASE is from his own history as an ASE. In the history of his own formation and development as an EASE, he has been trained and educated basically by two kinds of methods, either by 1) the apprentice training method (the Japanese way), or by 2) the self instructional method (the U.S way). The present being as an EASE is the result of his past training, which is appropriate to, or at least not inappropriate to, his own nature (so-called "aptitude"). However, EASEs, who are sensitive to the interrelationships between realities and possibilities, are also keenly aware of the existence of the congeniality (or so-called "ATI: Aptitude-Treatments Interactions") between the training methods and the nature of an ASE.

The views on necessary aptitudes for an EASE, as expressed by the EASEs themselves can be summarized as follows: 1) Those who seek the new have an aptitude for an EASE, on the other hand, those who do not will be unsuitable. 2) Those who do not like to routinized works have an aptitude for an EASE, on the other hand, those who like have not. 3) Those who can at least once (and even hypothetically) take the entire responsibility for failure and can reflect upon and learn from the experience have an aptitude for an EASE, on the other hand, those who tend to shirk those responsibilities for the failure have not. 4) Nobody can avoid instability, anxiety and fear, when forced with the new. So, those who can tolerate instability, anxiety and fear have an aptitude for an EASE, on the other hand, those who hate the instability, ··· have not. 5) Failure always comes with the work of an ASE. So, those who are do not dwell on failure have an aptitude for an EASE. On the other hand, those who do have not. 6) "Upper-stream SE"s are required to be able to maintain good human relations with the others inside and outside of the company, such as customers, super-ordinates, colleagues and subordinates. So, those who like and enjoy human interactions have an aptitude for an

EASE, but those who don't have not. 7) The ASE's work is to listen to others and synthesize. So, those who can listen to others and can learn from them have an aptitude for an EASE, but whose who cannot have not. 8) Those who can suit themselves to others have an aptitude for an EASE, but those who cannot have not. 9) Those who can cope with the unexpected have an aptitude for an EASE, but those who can not have not. 10) Proficiency in foreign languages is desirable, but not essential. (Reading translations is sufficient.) 11) An ASE does not have to be a Computer nerd. 12) An ASE does not have to be a graduate of a natural science or engineering college. 13) An ASE does not have to be good at higher mathematics. It is enough, if he liked arithmetic in primary school, and if he can think theoretically and logically. The implications of 11), 12), and 13) are that the selection of ASEs might be made, in the future, out of much larger populations than hitherto, with a possibility of expanding the pool of candidates more than is imaginable now, at least if and when adequate selection methods/procedures are discovered and/or invented in the future.

The Method and Procedures

As stated earlier, I myself interviewed the four EASEs as representative ASEs selected as pre-eminent ASE by respective companies. The interview was carried out in a free and open atomosphere just intended to reveal the lived world of each EASE. The interviewer attempted to remain as a listener and occasionally asked questions to prompt to reveal new aspects of each EASE's lived world. All interviewees commented that they had a good time to talk about their own life.

After the interviews were over, the author attempted to restore the talks of the interviewees and to edit and write the stories, initially in Japanese, (in English in this paper) in the manner of *Individulal Phenomenal Description* after Wertz, J.F. (1985). Four *Individulal Phenomenal Descriptions* were given in the Appendix, but are eliminated in the present abridged version.

The author repeatedly read through the Descriptions for many times, and excerised psychological reflection, taking the "Basic stance or attitude" advised by Wertz (ibid. pp.174 ~ 178): 1. Emphathic immersement in the world of description. 2. Slowing down and dwelling. 3. Magnification and amplification of the situation. 4. Suspension of belief and employment of intense interest. and 5. The turn from objects to their meanings. And then, the author engaged also in "Various possible activities of psychological reflection": 1. Use of an "existential base line." 2. Reflection on judgment. 3. Penetration of implicit horizons. 4. Making distinctions. 5. Seeing relations of constituents. 6. Thematization of reccurent meanings or motifs. 7. Interrogation of opacity. 8. Imaginative variation and seeing the essence of the case. 9. Languaging. 10. Verification, modification, and reformulation. and 11. Use of exitential-phenomenological concepts to guide reflection.

I would like the reader to refer the Wertz's stimulating article.

By these guidelines, the author was very much helped and encouraged in my writing of *The Structure and Meaning of the Lived Worlds of the Excellent Application System Engineers,* presented in the preceding section. However, in this tiny attempt, I must confess I had followed these guidelines neither perfectly nor to the perfection.

Further Implications of the Explication

What does this all mean?

Needless to say, the explication of the structure and meaning of the lived worlds of EASE can never be exhausted by what was given in the preceding section. However, even with this tiny study, I believe that the uniqueness of the EASE's lived worlds was explicated and demonstrated clearly enough.

Just to supplement the explication above, I would like to add the following points.

First, the job of ASEs is recently born and new, with the background of the rapid spread of advanced computerization to every sector of the modern society in the history of mankind. The meaning of this socio-historical phenomena of computerization and the strong demand for EASEs, at least in the Japanese labor market scene, and perhaps also in the world market scene also, would, if explicated, clarify the full significance of the structure and meaning of EASE's lived world.

Second, in the modern society of specialization, the EASE is a special kind of specialist, that is, he is a specialist, specialized in being a generalist. and also specialized, in an ordinary sense, in computer System Engineering. *He is a specialized generalist or a generalized specialist.* In his job, he is supposed to integrate being a production engineer and being a sales manager, his interests and his job, his knowledge and his practice, arts and sciences. As compared with a lower/down stream SE, a programer for instance, an upper stream SE, an Application SE, is evidently a generalist. He needs to be familiar with any subject matters, literature, arts and sciences, in order to be able to work adequately with a wide variety of people he may have to cooperate. I believe that a basic understanding of phenomenological psychology, for instance, will help him greatly in his efforts to understand others' worlds, the worlds of his coworkers and customers alike. He is a rare kind of a specialist.

Third, the image of the lived world of an EASE would give us an image of a new kind of an educated person who will be much needed in the near future modern society. This new image might even invite us to educate children to a new kind of people. If the goal of education should be directed to educate and train this new kind of a specialized generalist, then the meaning of teaching multiple subject matters in elementary and secondary schools will also have to change. In my observation, the multiple subject matters are taught in schools: 1) as a pool of possible alternatives, from which the individual would choose in the future as his/her specialized area(s) for

being a specialist, or 2) as common basics necessary to be acquired and shared among all modern educated citizens, with an understanding of the areas even outside of his own narrow specialized area. However, in upper stream SE's case, as a specialized generalist or a generalized specialist, he may need to continue developing his expertise on any subject matter whatsoever. Thus, with the appearance of the EASEs, the meaning of teaching and learning multiple subject matters in schools may and will have to change.

In this sense, I called an EASE a "Leonardo da Vinci" of modern society, a typically modern man after the appearance of computer revolution, his lived world being uniquely new in the history of mankind.

I have attempted to show the worlds of ASEs. Did you see their worlds ?

I hope you have experienced "*To see a world in a Grain of Sand*".

Epilogue

On June 18th, 1999, nearly four years and half after the interviews, I had an oppotunity to have a meeting of two hours with all of four interviewees together, requesting their frank and free talk of their impressions on the report, including the summary report presented to you here, and also on the summarized records of their own narratives and the way the explication had been carried out. In general, their responses were all very favorable and positive. In fact, one of the interviewees had used a good part of the report in his presentation for OJT session in his company on what is necessary for an Application Engineers to be excellent. He particularly loved the expression "Leonardo da Vinci of Today", he said. Another interviewee said, "I was amazed at the way scattered stories are summarized into the compact narrative of the structure and meaning. I really thought it's wonderful [「凄い」]." The third one said he was very much intrigued when he found his own narrative was identified by his high school son as his father's, in spite of the anonymity of the four narratives. The narratives have already become good personal portraits of interviewees, he said.

We really forgot the time. Among the issues we enjoyed were 1) on the contrast between the U.S. systematized method and the Japanese apprenticeship method of training ASEs. 2) the parts of the work of ASEs possibly be replaced by computer programs, and also 3) whether EASE is "*shallow and wide*" rather than "narrow and deep" in their interests. One of them commented that "*temporarily deep but transient and wide*" would express the situation more adequately, which I have adopted in my final version with thanks. We enjoyed talking with drinks which continued after the meeting and said good-bye at 9, which means we had talked for 6 hours in total.

I felt a little satisfied and comfortable to know that the EASEs did not find in the report any incongruence with their own feelings of their lived worlds as ASE and, more over, even to know that they wished to express their thanks for the explications, con-

tributing to promote a better understanding of the nature of their jobs within their own companies. All of this gave me a confirmation of the merits of this tiny attempt.

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Appendix

In this Appendix, a "*Synthetic-composite narrative by an imaginary Excellent Application System Engineer*" is presented, which was written by the author and which summarizes and shows the essence and flavor of four narratives by the four EASEs interviewed. The four narratives themselves had to be ommited here for want of space. They were supposed to be equivalent to "*Individual Phenomenal Descriptions*" a la Frederick J. Wertz (1985, p. 169).

The following imaginary narrative is given in a form of a first person story told by a hypothetical Excellent (and Expert) Application System Engineer, in order to make the story more readable, coherent and revealing. Naturally, the story also summarizes what the interviewer (=author) learned, from the four stories by EASE W, X, Y, and Z, as an insight into the lived worlds of EASEs. The reader might associatively recall such first person narratives as *A Portrait of the Artist as a Young Man* by James Joyce (1916), *An Autobiography of Virginia Woolf* by Mieko Kamiya (1981)(*), "*A Silver Spoon*" [『銀の匙』] by Kansuke Naka (1935), or *The Face of Another* [『他人の顔』] by Kobo Abe (1967) (**). In other words, this story is intended to condense the four stories, omitted in this version of the paper, into one, in order to encapsulate the common features of the four stories, and also retain a lively first person narrative to complement the more logically structured explication presented earlier in the main section of this paper.

(*) Mieko Kamiya (1981): *An Autobiography of Virginia Woolf,* [「V. ウルフの自叙伝試作」] in『ヴァジニア・ウルフ研究』みすず書房, pp. 33–66.

(**) Kobo Abe (1967): The Face of Another, Charles E. Tuttle.

A synthetic-composite narrative by an imaginary Excellent Application System Engineer

I am working now as a System Engineer (to be denoted as an SE hereafter). In this business world, my job is what is called an Upper-stream SE or an Application SE (to be denoted as an ASE). I love this job and I am satisfied with my job. This is because this job is enjoyable. Well, it may be enjoyable because I love it so. Could this be a simultaneous cause-and-effect, or a successive cause-and-effect? Anyway, I love and enjoy being an SE.

When I graduated university, I did not particularly intend to be an SE. To begin with, my university education is not at all relevant to my present job as an ASE. Most of the knowledge and technology necessary for the SE's job has been acquired by experience after I got the job and in OJT (on-the-job training). The quality and quantity of what I have learned in the job would be several times as much and faster as those of what I learned during my university days. In this sense, what a person learned in the university can not be the criterion to decide whether the person should be and/or is suited to be an ASE. I believe university education cannot decide the matter. Rather, if we are to seek criteria, they could be whether the person is able to think with logic and reason, or more concretely, whether the person was good at Arithmetic in primary school days. It is not at all the case that, to be an ASE, the person absolutely needs to be able to work, from the outset, with the higher Mathematics taught and learned in Engineering or Natural Science Colleges of Universities, as common people would strongly believe.

Roughly speaking, in the world of the SE, there seem to be two ways of educating and training, 1) One is, so to speak, the Systematized Education of the U.S., in which the system and educational "kits" for training are all well organized and systematized. People learning there are encouraged to practise "independent learning". This method is suited for people who willingly learn by themselves. 2) The other is, so to speak, the "Japanese Apprenticeship method by word of mouth". It is a method just like the old apprenticeship system in which novice carpenters learned by word of mouth from their masters and/or senior pupils. People learning this way are taught by their seniors, on a case by case basis in situ, responding together to the emerging practical problems. As you can easily imagine, each method has its own merits and demerits. It also varies from people to people which method is more suitable. However, strangely enough, the training of the forerunners of systematization, i.e. the ASEs, is not yet systematized, and is practiced overwhelmingly by "apprenticeship". This sounds a little like a paradox, doesn't it? Ha, ha,···. By which of the two training systems have I been educated, would you guess ?

Now, this ASE world is a world of very rapid progress. It often happens that what was

new two or three years ago is now treated as an antique. Progress here is so fast. However, this has another meaning, that is, something like a "dream" now may often become reality in a surprising manner in the near future. And we can have this kind of expectation now with a sense of reality. In this sense, this is literally a job to "bring a dream to reality".

Speaking of a "dream", I am very much fond of dreaming. In a sense, I may be called a dreamer, a daydreamer. I love to imagine and daydream, and also to play in the worlds of imagination and phantasy. I like reading novels, particularly Science Fiction. However, on this point, it may vary among ASEs.

Speaking of "love", what I love is, in a word, something new. To be more specific, I love the excitement of beginning something new. Curiosity is so strong with me. You may say I sound like a child. Yes, fortunately, I may be still keeping the mind of a child now. And that is possible in the work of the ASE's. By the way, there seem to be two kinds of newness; 1) One is the newness of something unknown, when I enter a new world unknown to me and encounter something new and unknown before. and 2) The other is the newness of something old and known, when I discover some surprisingly new aspects of something believed as already familiar in the world also already well acquainted. For example, I was told that even in the work of craftsmen, who seemingly repeating the same operations everyday, there are still discoveries of something new everyday too. Then, in the distinction of 1) and 2), I feel I am definitely attracted by the newness of 1), that is the newness in the sense of entering an unknown world. The discovery of something new in an unknown world, that is definitely what I seek. So, in both of my works and hobbies alike, I hate to come to feel that I am repeating something. Certainly, I cannot employ the familiar way I am used to, when I start doing something new. Many difficult problems emerge in unexpected ways, which do not happen in a familiar world. By using familiar means I will be forced to fail and experience difficulties. But, I cannot help loving the experience of solving problems, while tackling such difficulties.

So, I am not afraid of failures while tackling something new. No, I may be saying too much. Rather, I might say, I would not like to end up with my failures as mere failures. May I say, I would consider it a new challenge to attempt to overcome failure? Or, may I say, I accept failure as good foods for my growth. Therefore, I sometimes overcome failure just by going deliberately through all the hardships of a failure. I find new enjoyment in doing so. So, I rather enjoy, strangely to say, situations in which I can hardly tell what and how to do anything at all. Out of difficult situations, I enjoy the process of making progress toward discovering a new insight of what and how to do better. Anyway, I do not worry about my failures too much and too long. In other words, I am optimistic. Seen from the outside, I may look weak and delicate, but inside I have a strong will or, it may sound rather conceited to say, I have a fundamental confidence in myself.

I like travelling. However, I would prefer visiting entirely new unknown places for the first time than revisiting old familiar places. My taste here may be very much common with my tastes in my job.

With hobbies, it is just the same. When I get interested in something new, I tend to start getting involved with it and become excited by it for a while. But, after I become able to do it well enough like others, then I get tired of it and begin to be tempted by something new again. So, I have never reached the level of perfection in any of my hobbies. I start doing the next one, leaving the old never to be overdone. People comment on me as "Being easy to heat up and easy to cool down". It may be true. However, I accept this tendency as my nature, and I am satisfied with it. Moreover, hobbies are hobbies, not obligations or work. It would be perfectly all right that one may do whatever and however one would like to do, only if one enjoys it whole-heartedly and get satisfaction out of it. It may be that in hobbies which I can freely choose on my own will, perhaps, there evidently emerges precisely what I am uniquely like.

As a result, it happened that I have many hobbies. It occurred to me that having many hobbies may be helping me in my business too. 1) For one thing, it means that having many hobbies has resulted in my knowing many various worlds. This means that it has become possible for me to bring many various new ideas into my job of building new systems, by way of using metaphors and adopting models. The metaphor is the origin of new ideas. Who said that? Was it the French philosopher Paul Ricoeur or was it somebody else? 2) For another, through many various hobbies, I have become more sociable and easier to communicate with. I like it very much to talk with people from other kinds of jobs or of business areas, people who are working in worlds totally different from mine. We should never make light of this point, because, in the ASE's job, harmonious human relationships with people both inside and outside of his company are essential. You may be surprised to hear this, but good human relationships are the pivot of this job. It seems to me that the more hobbies I have come to have, the more empathizing I have become, and the easier it has become to have good harmonious human relationships. The process a) of getting to understand unfamiliar ways of thinking of people outside of my company (e.g. of our customers), may be very much like the process b) of familiarizing myself with new hobbies. In this job, dealing with the people outside of one's company, one must essentially approach them from oneself and must adapt oneself to them. Besides, both processes of a) and b) are challenging and very attractive to me. If we have some hobbies in common, we have no difficulty in finding topics to talk about. I have no difficulty in talking with people even on first meeting. The topics of hobbies can be a lubricant even in work. In addition, for securing good team-work inside of my company (e.g. with my subordinates), if I can associate with them in many hobby situations other than work situations, then our human relationships will become even more smooth, and we will have less anxiety for our mutual understanding and trust. Therefore, having a lot of hobbies works well in

this way. In this busy business world, of course, we cannot spend every evening at bars, even for a smooth human relationship. The ASE's maturity in human relationships is very important but could be brought about in his OJT, if conditions are well prepared.

I said I have a lot of hobbies, I never overdo things, and I am easy to heat up and to cool down. But, please, never misunderstand that my job will be as sloppy as a playboy's job. First of all, needless to say, the work of systematization can never be accomplished by sloppy irresponsibility. As you know, the most honest computer never listens to, follows or works with sloppy instructions. Programming itself is an "artificial world" all right, but it is a world of necessity, far more than the "natural world" governed by natural scientific laws. The job of an ASE must be rigorous and perfect. In this sense, this job is unmistakably a very "hard job", rather than a "soft job". An ASE must be skilled in both being "soft" and "hard", synthesizing the flexible and the rigorous, just like a good Samurai had to be skilled in both literary and martial arts. Of course, we are not bound within the boundary of the world of necessity only. We must enjoy playing, so to speak, in the world of dreams, in the world of possibilities, with abundant imagination. My interest in SF may perhaps be related to such a world of possibilities. Imagination is the source of creation. While being rooted in the foundation of the organized and systematized world of computers, systematization and programming, the job of an ASE draws initially upon many abundant and seemingly fantastic dreams and reaches up high in the heaven of the world of possibilities. (In other words, the job is such as to set its main trunk rooted in the stern world of necessity and reality and to build the concrete systems and programs that properly work in the reality, and, as a result, gives fruits of systematization and actualization of fantastic dreams.) The reality is the beloved child of parents called necessity and possibility, is not it?

In an ASE's work, in order to make the real world rich and fertile, both the worlds of necessity and possibility must be rich also.

Is imagination in literature would be effective in stimulating the imagination necessary for an ASE? Well, indeed, that could be thought so, yes. Certainly, among the SEs I know, there seem to be surprisingly many literature lovers. However, it may not necessarily be essential, because I know one excellent ASE who hates literature. He brags that he reads only SF and business books and that he hates letters. Once when he was ridiculed by his peers that he lacked Jyochosei (emotionality), he retorted cleverly that it is not he lacks Jyochosei but he lacks Jyouchousei (redundancy) unlike them. Good for him, ha, ha, ha ···. Even with this example alone, it is evidently demonstrated that the love of literature is not essential for an ASE's job. As a proof of this point, his case is very valuable. However, even this person is very fond of daydreaming. Perhaps, I guess, in his unique daydreaming, he is constructing his own rich world of various possibilities. Yes, yes, I should not fail to point out that, for an ASE, a sense of the beauty is very important. Of course, speaking of beauty, there are many kinds, I know. However,

the sense of beauty needed in the ASE's work is the sensibility for mathematical or logical beauty. We sometimes talk about it among ourselves, and we all agree that without this sense, an ASE could not do a good job. It is a bit difficult to explain. A system is beautiful, when it is simple, without waste, well-ordered both structurally and hierarchically, has necessity in its order, all of its parts are well situated in the whole, and its function and structure are harmonious, ……. You could say more in different ways. An ASE must be able to sense beauty, and he must also love beauty and actively seeks it. That is important. Actually, in my long years of experience of doing this job, I could never forget the excitement, when an entirely new beautiful structure and order gradually emerge out of horrible disorder and chaos. Oh, "The horizon structure of experience"? That is what your phenomenology calls it, I see. Anyway, this sense of such beauty and the love of it, such a sense, a flash or inspiration, intuitional sharpness is essential for an ASE, to make the prospect of a work clear.

My joy as an ASE, do you ask? Well, let me add that I am not a quiet "down stream SE" (Making SE) but a loud "upper stream SE" (Application SE). A down steam SE makes programs. An upper stream SE begins his new job from the initial contact with his entirely inexperienced customers, organizing the team of SEs and end up with completing the frameworks for systematization. The pivot of this job is the idea and sense. As for the joy of the work experienced by the upper stream SE, there seem to be two kinds. (1) The first kind is the joy in human relationships. One is the human relationship with the people outside of one's own company. The joy when one sees the smiling faces of customers, after working together for a long time, at the completion of the system. The other is the human relationship with the people inside of one's company. The joy when one exchanges smiles at the completion of the work with people who have been working hard together for the construction of the system, including SEs, super-ordinates, colleagues, subordinates. (2) The second kind is the joy in relation to the system itself. The joy common to all productive work, that is the joy when one feels when, after designing it and working hard, one has contributed to build this wonderfully beautiful system full of sense and ideas. Basically, these are two kinds of joys, I believe. Both give us the sense of fulfillment in living. The real thrill of working as an ASE consists in this sense of fulfillment.

Last but not the least, let me tell you about the importance of distinguishing between relevant and irrelevant things. I learned this distinction through my job. In the work of systematization, the objective is very clear, so that there are things relevant and irrelevant to the accomplishment of the purpose and realization of the goal. However, you cannot know what is relevant or irrelevant, until you know the concrete details of the systematization as a whole. At this point, a distinction should be made between 1) knowing that there is the distinction between things relevant and things irrelevant in the light of the purpose, and 2) knowing what are the things relevant and the things irrelevant. These 1) and 2) are interrelated but are separate matters. I did

not at all understand this, when I started to work as an ASE. Today, I recall as a bitter experience the hard time I had to go through, because I did not have the faintest idea of even the first of these, that is 1). Oh, does the book called "The Structures of the Life-World" (by Alfred Schutz) discuss the matter in detail? I wish I had studied such a book in my university days while I had plenty of time for reading.

At any rate, you may possibly call an SE, particularly an upper stream SE, the Leonardo da Vinci (1452–1519) of today. He is scientific, artistic, full of imagination, creative, and constructs new systems one after another. He could be considered as a modern pioneer, a multi-talented personality, an artistic, scientific, inventive discoverer. Well, well, I may have talked too much. Please, pardon me.

Here ends the seemingly never ending story of our beloved Mr. Imaginary Excellent Application System Engineer.