

Study Notes

Health Problems in Sign Language Interpreters and Their Support¹⁾: Implications and Tasks from the Viewpoint of Demand-Control Theory

YOSHIOKA Masako

(College of Letters, Ritsumeikan University)

Recently in the field of sign language interpreting, there has been interest focused on the health problems (such as cumulative trauma disorders), which is seen as “individuals’ status of well-being”, rather than only viewed as “physical or psychological illness”. In this line of thought, this paper examines the implications and tasks for building an integrative support for interpreters. The paper includes, 1) a literature review addressing the health problems in this field, 2) identification of prerequisites for an integrative approach based on the findings, 3) introduction of Dean & Pollards (2001) study, which applied demand-control theory (DCT) to sign language interpreting, and 4) a discussion of the possible utility of DCT as an integrative support, based on the prerequisites that emerged from the review. It is suggested that the DCT needs some complement to work as an integrative support, especially in that the development of methodological and technical levels.

Key words : sign language interpreting, health problems, occupational stress, demand-control theory

1. Problems and Purposes

Recently, there has been an increased need for sign language interpreting for individuals with hearing disabilities. However, health problems among sign language interpreters (hereafter, “interpreters”) have become a serious problem (DeCaro, Feuerstein & Hurwitz, 1992, Feuerstein & Fitzgerd, 1992, Peper & Gibney, 1999, Stedt, 1992). DeCaro

et al. (1992) examined interpreters working at educational institutions and reported that approximately 45% of the interpreters were forced to reduce their working hours or completely abandon their jobs due to upper limb pain and malfunctions. Many of them developed cumulative trauma disorders (CTD), including tendinitis and carpal-tunnel syndrome. The high incidence rate of CTD has caused a lack of national level interpreters in the United States (Watson, 1987), and examinations of factors and preventive measures have been important issues of concern.

Since the 1989 case of an interpreter with cervicobrachial syndrome who applied for worker’s compensation for an occupational

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hazard, this problem began being widely recognized in Japan. In 1990, the National Research Association for Sign Language Interpretation (abbreviated as “Zen-tsu-ken” in Japanese) conducted a survey to determine the actual health conditions of interpreters. Based on the survey results, various actions were taken, including the distribution of a pamphlet for preventing cervicobrachial syndrome (Japanese Federation of the Deaf/ National Research Association for Sign Language Interpretation, 1994). In addition, Zen-tsu-ken organized voluntary study sessions held at various locations during their sectional meetings related to health issues. In previous researches, health hazards for interpreters were mainly examined from a medical or physical viewpoint. In these context, health hazards are defined as “physical illness”. Conversely, there was a considerable amount of research that suggested the relationship between interpreters’ health hazards (such as burnout) and various types of stress at work (for example, Heller, Stansfield & Langholtz, 1986, and Watson, 1987). In these researches context, health hazards were defined as “psychological malfunction”. In other words, although the issue was related to both physical and psychological aspects, previous studies had only examined each of these aspects separately.

In order to achieve the common goal to preventing occupational health problems, it is needed to reexamine the framework of the research. Similar indications had been made by interpreters themselves over the years. For example, Asano and Suzuki (2002) noted

the necessity of defining health hazards not just as the illnesses of certain body parts, but as “a total condition of physical, mental and social health” (i.e., well-being). More specifically, the support here can be described as “not handling specific areas like physical or psychological issues, but regarded as a comprehensive matter to improve and maintain interpreters’ well-being.”²⁾

There is very little research responding to the voices of interpreters. Dean & Pollard (2001) challenged to apply demand-control theory (DCT; Karasek, 1979), a theory regarding occupational stress, in the field of sign language interpreting. They aimed to build a framework for analysis and support that taking into consideration of the viewpoint of Asano and Suzuki (2002). It appears that the study has important suggestions for future directions. Therefore, the purpose of this study is 1) to review the knowledge accumulated under traditional framework, and 2) to examine the possibility of DCT in developing an integrative support based on the study of Dean & Pollard (2001).

2) Regarding the meaning of “support”, in some contexts of welfare practice for individuals with disabilities, the following argument appeared. Mochizuki (1997, 1998) stated the need for changes from traditional practices, of which the service provider mainly focused on the response change in individuals for lessening their disabilities. Instead of such services, he emphasized that necessity of new practices, which focused on the re-arrangement of the environmental settings for helping the occurrence of effective behaviors and maximizing the individual’s potential. This article follows the idea and uses the word “support” in the same context as Mochizuki (1997, 1998). Therefore “support” here always seeks the mutual changes in interpreters and the environment, and does not seek the changes only in one side.

2. Research of Health Problems for Sign Language Interpreters

This section examines following two points; 1) the shared points and problems between physical and mental health, based on the knowledge accumulated under each framework, 2) the conditions required for an integrative support.

2.1. Research Focused on “Physical” Health

Peper & Gibney (1999) made a psychophysiologic analysis of discomfort symptoms attached to translation tasks. Breathing, temperatures of peripheral parts, skin conductivity and muscle tone were used for measurement indicators. As a result, fast breathing, decreased peripheral nerve temperatures and increased skin conductivity were pointed out as risk factors related to discomfort symptoms, such as upper limb pain. According to Peper & Tibbets (1994), cold hands are largely connected to performance anxiety, and fast, shallow breathing accelerates the symptom. Based on these results, Peper & Gibney (1999) suggested that the generation of uncomfortable symptoms could be prevented by warming interpreters’ hands and taking frequent breaks. DeCaro et al. (1992) analyzed the factors that trigger upper limb CTD from an ergonomic viewpoint. They found that certain interpreting moves, such as the frequent shifting of hands from a central position and fast finger movement, are related to increased pain and fatigue.

All of the above mentioned research

concluded that the cause of upper limb disorders was the physical workload. These implications are important for interpreters to understand the cumulative effect of repetitive motions and to practice preventive measures. Grave upper limb disorders can be seen in other occupations that have repetitive motions (for example, constant computer typing tasks) and these also are targeted to receive an ergonomic approach (for example, Peper, Wilson, Taylor, Pierce, Bender & Tibbets, 1994). However, unlike other jobs, it is necessary to consider the specific characters of interpreting. Interpreters are always involved in communications among people. So, in many cases, to control independent variables such as how or when to take a break during interpreting, it is needed to control the factors of clients too. For example, in educational settings, interpreters cannot directly control the timing of breaks. It is controlled by the instructor, who is one of the clients. Decaro et al. (1992) pointed that it was important to construct a cooperative labor agreement between interpreters and the clients in order to prevent CTD. Moreover, from a medical viewpoint, there are suggestions that further issues should be examined, such as the involvement of psychological factors for developing a clinical picture (Kitahara, Taoda, Nishiyama, 1996), continuous consultation (Decaro et al., 1992), increase in the absolute number of sign language interpreters (Taoda, Nishiyama, Yamashita, 1997) and setting appropriate standards of job management (Taoda, 1992).

By putting all these factors together, for an integrative support, it seems appropriate to

apply multi-dimensional analysis rather than analysis from single or fixed dimension (for example, the relationship between physical workload and upper limb disorders).

2.2. Research Focused on “Psychological” Health

Heller et al. (1986) conducted a descriptive study regarding occupational stress using a self-made questionnaire and a checklist of standard symptoms on 48 interpreters, including students who were taking the curriculum. In setting the research questions, the authors noted the following two points. First, based on anecdotal reports, it was indicated that there was a lack of aid for high occupational requests for sign language interpreters. This condition would possibly distribute not only work performance but also interpreters' well-being. Second, although such a problem had been frequently debated among sign language interpreters, there was no published research. Because of the above situations, the purpose of the research was decided as 1) to assess the stress levels carried by interpreters, and 2) to collect information regarding the sources of stress. What follows are the characteristic results obtained from their investigation.

Initial results supported the anecdotal reports, indicating that interpreters are under high stress as a group. From an evaluation of the checklists, 50% of all responders showed a value called psychological impairment (Jackson, 1962). Additionally, 90% of all responders felt they had very few ways of coping with stress, showing a string of needs for aid.

On the sources of stress, the three most frequent responses were, “strain from the role”, “lack of professional skills” and “bad labor conditions”. “Strain from the role” means the conflict between personal emotions and occupational role. For example, there were comments like “even if an interpreter is emotionally influenced, he/she cannot describe it” and “clients are unfamiliar to use interpreters”. Many responders strongly mentioned the necessity of discussion about their experiences during interpreting as a way to deal with emotional confusion. In fact, it is prohibited in the general principles of ethics, but everybody reported talking to their colleagues about their interpreting experiences. Furthermore, anecdotal responses suggested some interpreters felt that having emotional feelings during interpreting was “bad” and showed a “lack of expertise”. Regarding such evaluation, the authors suggested the influence of traditional education that requires an adherence of neutrality and confidentiality by suppressing emotion. Although many responders mentioned “a lack of expertise” secondly, there were only few who reported specific conditions. From this tendency, the authors stated a lack of skills along with the expectations of high level performance is a typical source of concern, and it might be more acceptable than stress from emotional difficulties. Regarding the third factor, “bad labor conditions”, responders reiterated with comments like, “unstable job environment” and “inappropriate payment”.

From these results, the authors indicated the possibility that a lack of skill to deal with

emotional confusion is the major factor of stress. For future progress, it was recommended that 1) implementations of training and workshops for coping stress and 2) consumer educations regarding using interpreting service. Heller et al. (1986) did not suggest the detailed connection between stress and physical symptoms. However, to search their relationship is equal to a task suggested by Kitahara et al. (1996), that is to examine the influence of psychological factors on developing cervicobrachial syndrome. Also, disagreement between ethical principles and the actual behavior of interpreters indicates the necessity to reconsider the way to provide education and support, including not only interpreters, but also clients. In addition, improvement of labor conditions requires changes in the organization and system level. As seen above, the respective approach shares each other's problems. Therefore, it seems valuable to reconsider the goal of support in achieving an integrative approach. Watson (1987) conducted research on burnout. When 66 interpreters were asked whether they thought sign language interpreters were recognized as professionals, 37 of them replied, "No". On the other hand, positive responses about their work included finding high level assignments to be challenging, being interested in language and culture and encountering various people. Although it is not clearly indicated in Heller et al. (1986), addressing these tasks such as the improvement of labor conditions and establishing the profession would also improve the enjoyment of work and quality of life as indicated by Watson (1986). This attitude

matched what interpreters said, that is "capturing of well-being from everyday life, which is the basis of our work" (Asano and Suzuki, 2002). In previous studies, the goal had been to eliminate interpreters' physical or psychological symptoms. However, in the light of the indications of Watson (1987) and others, the goal should not stay within the range of eliminating symptoms but actively establishing interpreting services in which there is an equal relationship with clients (the provider of the service and the consumer)³⁾. That is a condition that clients function properly as a main body of communication and consume the service, while interpreters provide sufficient service and receive job enjoyment. To achieve this goal, it should be empirically reexamine the validity of the requests for interpreters, including setting objective standards for managing interpreting work.

3. Applying DCT in Supporting Sign Language Interpreters

In this section, 1) the framework of DCT is described as an approach that contains traditional separate views, and 2) introduces an attempt applying DCT for sign language

3) As pointed out in Heller et al. (1986), there are situations where an "equal relationship with clients" is not formed. For example, when a client is not accustomed with interpreting service, the chair of a meeting will sometimes ask the interpreter for his/her opinion and/or to record the contents of the meeting. These are not included in the services offered by interpreters. Therefore, an equal relationship between the service provider and the consumer is not formed.

interpreters by Dean & Pollard (2001).

3.1. Analysis Framework of DCT

Karasek (1979) presented DCT as a theory to comprehend the viewpoint of occupational stress when looked at as an interaction between individuals and environment⁴⁾. Initially, he refused to use the words, stress or stressor as analysis words. Reasons for this were, 1) stress is a word that refers to the internal condition of an individual, and 2) stressor is a word in which individual and environmental factors are confused as a source of stress. He also suggested the importance to externalize the causal relationship as an interaction between individual and environment, rather than tracing the cause of stress to an internal event, which cannot be directly measured. Therefore, from the viewpoint of the possibility of change, he adopted the analysis term, “demand-control” instead of “stressor”. “Demand” means requirement in the course of his/her work assigned to an individual at relevant occupational environments, and control means the degree of impact that an individual gives toward demand. “Control” includes two factors: the skill and resource to

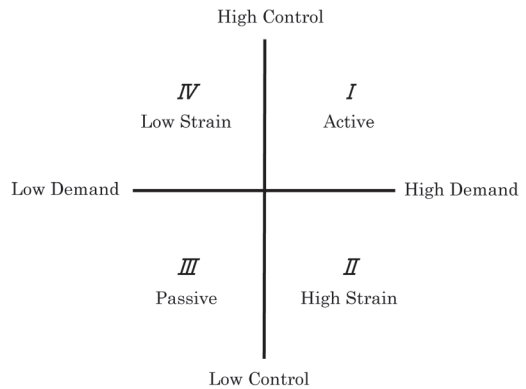


Figure 1 Model of Demand-Control Theory by Dean & Pollard (2001)

handle the presented demand, and authority in regards to decisions. The two dimensional model is adopted for analysis framework (Figure 1).

In the DCT model, there are following assumptions. First, occupational stress is created by a deviance of two dimensions (corresponding to quadrant II and quadrant IV in Figure 1). In particular, quadrant II, high demand and low control, is considered to have the heaviest burden on an individual. The second assumption is that the most favorable occupational experience is when the two dimensions are high, as in quadrant I. An individual under this condition learns a lot from his/her work and earns the highest level of work satisfaction. Contrarily, quadrant III shows that the two dimensions are balanced, but the individual hardly learns anything from his/her work. Based on these assumptions, the model describes the occupational experiences in each quadrant to be “active,” “passive,” “high strain” and “low strain”. Regarding these assumptions, a cross-sectional study (Karasek, 1990) and a longitudinal study (Alfredsson, Karasek &

4) Since Karasek proposed DCT in 1979, many studies based on this theory have been conducted. Especially in the article “*Healthy Work: Stress, Productivity and the Reconstructing of Work Life*” (Karasek & Theorell, 1990), the progress and the outcomes of studies are described. However, the present article aims to evaluate DCT’s usability as an integrative support. For that purpose, it is important to consider the backgrounds of Karasek’s proposal of DCT and its direction of support. For this reason, this article examined the description of his initial DCT articles, Karasek (1979), and not mentioned his later article.

Theorell, 1982) were conducted based on national scale data, and the results have been supported by others.

Karasek (1979) suggested the rise and fall of demand and control are in an unsettled relationship and not fixed by certain situations and/or tasks. This means, an analysis of individual occupational stress with DCT is always idiographic. A two dimensional relationship between individual tasks and the entire organization can be assumed as follows. Demand for certain tasks reflects the production level of the entire organization and control is deeply related to the decision structure of the organization and the technology it owns. Therefore, whether a high production target of the organization causes strain on an individual or not (that means, whether a case is quadrant I or II) is a key variable of the flexibility of the decision structure. Based on the above attitude, DCT's basic idea for support is to improve the environmental conditions to fulfill the demand, and enhance the control of individual (i.e., transition to quadrant I).

3.2. Appling of DCT by Dean & Pollard (2001)

3.2.1. Demands of sign language interpreting

Dean et al. categorized the demands of interpreting into four linguistic and non-linguistic categories (Table 1).

Here is a brief explanation of each category. Linguistic demands include matters regarding interpreting tasks. For example, when the sign language or utterances of a client are very fast, linguistic demand increases. Environmental demands include factors regarding the setting for interpreting task.

For example, when a monitor is used for a lecture and the speaker is far apart, so that it doesn't allow an interpreter to smoothly move his/her eyes. Interpersonal demands are factors regarding interaction toward the people involved in the concerned communication. This factor includes the influence of people, who are not in the interpreting setting. For example, the process of interpreting at a work may be influenced by the intention of managers who are not there. The fourth item, inter-personal demand includes the physical and psychological factors regarding interpreters themselves, such as if they feel hurt when a Deaf client is treated unfairly. Following Karasek's (1979) assertion, Dean et al. said the demands of each category in Table 1 influence each other. Also, it is assumed that demand and control could change within a same task, so that conceptualizing it in a fixed manner is inappropriate. Through their analysis, it appears that sign language interpretation is a job with potentially highly complicated demands.

3.2.2. Control of demands

Dean et al. can be organized as follows from the viewpoint of 1) the differences between sign language interpreting and other specialist jobs, and 2) the possibility of changes. First, there are common points with other professions, including training and past experience influence control much more than the worksite condition, and decision making authority belongs mainly to the regulations of ethical outline and behavior models. In general, many people who have professional jobs, such as medical doctors, are said to

enjoy a wide area of control corresponded to high demand. According to Karasek & Theorell (1990), such work experience (corresponding to quadrant I) is most favorable and has a low relationship with psychophysiological risks. However, due to following two characteristics, sign language interpreting has aspects different from other professions. 3) Except for linguistic demand (as translational work), it is required *not to exert* authority of determination, and 4) there are very poor resources for education and training to fulfill high level demand. Regarding 3), it is regulated in ethical outline as neutrality and confidentiality. For example, the ethical outline of an international interpreters' organization, RID (Registry of Interpreters of the Deaf) states that interpreters "do not give advice and/or state his/her personal opinion" (RID, 1980). This restriction is very important for protecting clients' rights and should be kept as a vital condition for interpreting tasks. Contrarily,

4) suggests that the required condition has not been developed. Therefore, Dean et al. sought the possibility of change in controlling the arrangement of resources for basic education and advanced training.

Regarding education and training, they described the current status as follows. First, the existing educational curriculum did not respond to three of the demands, except the linguistic one (Dean & Pollard, 2001, Roy, 1993 and Watson, 1987). Roy (1993) examined the role and definition from the change of metaphorical descriptions about interpreters. In chronological order to day, the role of interpreters has been described as "helper," "machine," "communication promoter" and "professional of two languages/cultures" (Witter-Merithew, 1986). This indicates that from early days, while the families and friends of Deaf people carried on interpreters' work, the professional characters other than translating gradually gained attention. However, Roy (1993) stated that while

**Table 1 Types of Demand and Examples on Sign Language Interpreting
(From Dean & Pollard, 2001. Some of the examples are omitted)**

Type	Example of the Sources of Demand
Linguistic	<ul style="list-style-type: none"> - Modality, speed and fluency of the communication made by the client - Level of voice and scale of sign language - Interpreter's reception and expression skill - Usage of technical terms
Environmental	<ul style="list-style-type: none"> - General character of the concerned task - Room temperature, seat allocation, quality of light, visibility disturbances
Interpersonal	<ul style="list-style-type: none"> - Clients' understanding of the interpreter's role - Communication towards the interpreter - Authority and power relationship on the job - Oppression, dishonest, unfairness
In-personal	<ul style="list-style-type: none"> - Substituting type of response - Physiological responses and disturbances - Doubts about own performance - Anonymous characteristics and a feeling of isolation - Lack of judicial grounds regarding the duty to protect confidentiality

recognition has been changing, the education still focused on the aspect of mechanic aspects of translation and not responding to complicated requests raised at actual communication. There has been similar argument related to the demands created in specific settings, such as law, medical care (Fritsch-Rudser, 1996), and cultural intermediation between hearing and Deaf people (Cavell & Wells, 1986).

In the field of human services, practicum and the other advanced training basically continue after finishing the standard course. Such OJT (On the Job Training) and supervision are resources that each profession should equip with. However, in sign language interpreting, there are barely any public programs available after finishing the education course (Barber-Gonzales, Preston & Sanderson, 1986, Dean & Pollard, 2001, Witter-Merithew & Johnson, 2004). Additionally, interpreters working mainly as freelance have very few opportunities to receive feedback from colleagues (Roy, 1993, Watson, 1987). This means, even if an interpreter felt difficult emotions (for example, interpreting a slanderous statement to the other party), he/she had no option than to remain stoic at the settings under the ethical outline, and (since there is no supervision) handle any emotional confusion all by himself/herself.

Dean et al. investigated the influence of such poor resources on interpreters' skill. 48 interpreters who finished education joined the survey. They assessed the degree of learning for each of 15 major interpreting skills before and after education. Results showed that only

33.4 % of the skills were learned during the education, while remain 66.6a% of the skills was learned after education. Although this is not the data of actual skills, it seems to show that the resource responding high demands are generally lacking. As a future task, the authors pointed that the importance of securing resources to prevent CTD and burnout, especially in the development of training and continuous supervision to fulfill environmental, inter-personal and personal demands.

4. Toward an Integrative Support - The Possibility of DCT and Future Tasks

From the discussion of 2, it is suggested that following four conditions will require for achieving an integrative support. 1) To make it possible to conduct multi-dimensional analysis including from individual's internal status to organization levels, 2) to set the support goal that seeks the service with fair relationships among interpreters and clients, and for achieving 2), 3) to make it possible to reexamine the environmental requests on sign language interpreters. It will also need to conduct experimental analysis that could identify the cause and effect relationship, as well as the change strategies. Therefore the last one is 4) to explore the methodology for experimental analysis and techniques for support. Based on these assumptions, this section examines the viability of DCT as an integrative approach.

Regarding 1), DCT captures demands and control from each task, which is a basic unit

of analysis, to the organization as a continuum. The analysis focused on the interaction between an individual and the environment (including personal, physical, and social), so that the individual's internal events were not considered as a direct target of analysis. However, Dean et al., based on the results of Heller et al. (1986) and Watson (1987), conceptualized the factors of internal events as demands on individuals. Although Dean & Pollard (2001) did not mention about this point, the addition of the analysis' target will produce the contradiction with the fundamental standpoint of DCT, which does not directly target the internal event. Therefore, some supplemental approach should be needed along with the expansion of analysis. Thus DCT does not fulfill the conditions of 1) by itself.

Regarding 2), the goal of DCT is to bring occupational experiences described as "active" down to individuals. Karasek (1979) assumes such active experiences lead individuals to build new behavior patterns both at work and during their free time. In the case of interpreters, it can be said that an interpreter offers a service as a professional and takes responsible action to expand the joy he/she has received there as well as his/her quality of life. That means the conditions on 2) are fulfilled.

Regarding 3), "environmental request" is corresponding to the demands of DCT. In DCT, the basic support strategy is "organizing the environmental conditions to respond the demand and enhance individual control. This means that DCT does not fundamentally discuss about the validity of

existing demand. Because of this, it is considered that 3) has not been fulfilled in DCT. The reason DCT takes the above strategy is as follows. In many cases, demand reflects the corresponding organization's productivity, so that an approach seeking individual well-being without largely changing demand will bring benefits to both the organization and individuals. Following this idea, Dean et al. noted that the main task is to increase educational and training resources to meet high demands. However, within the sign language interpreting field, not only the rights and wrongs of moral outlines are still argued, but also the characteristics of the job itself are still being formed (Witter-Merithew & Johnson, 2004). Therefore, it is not considered proper to follow DCT's support strategy in this field. In particular, for interpersonal and intrapersonal demands, it is considered necessary to actively explore the new environmental settings which ensuring the equality among all involved members.

Finally, regarding 4), the analytic term "demand" and "control" of DCT has only a conceptual definition. The operational definition has not been added to it. Its evaluation is made mainly in introspective reports with questionnaires. It is not attempted to search actual behavior change or to propose objective measure. Additionally, DCT is not an approach that has a particular methodology and techniques for support. Therefore it seems that the feasibility of support based on the framework is potentially low. Even looking at previous research using DCT, many of the purposes is to examine

hypotheses of models by conducting correlation analysis or regression analysis with multiple questionnaires (for example, Landsbergis, 1988, Murray, Jackson, Wall, Wilson & Grey-Taylor, 1997). However, as Karasek (1979) stated, the aim of DCT is supporting people to be able to transit quadrant I by managing the relationship between demand and control. In the present situation, there is no such study. Therefore, it must be needed to begin with the realization of the fundamental idea of the model (for example, by creating assessment tools to measure interaction).

From the above discussion, the utility of DCT could be most highly evaluated in two points. One is the wide scope which including not only interpreters themselves, but also the clients and organizations. The other is the perspective to understand health that tightly linked to quality of life. On the other hand, examinations of conditions 1) and 3) showed that there was a fundamental difference in the stance between an integrative support and DCT. This means that even if a supplement is given at methodology and technology levels, DCT alone would not function as an integrative support. Therefore, it seems that it is necessary to develop an approach that complement the weakness of DCT and fulfills the above four conditions in the future.

5. Conclusion – The Problem with “Roles” for Sign Language Interpreters and Their Well-Being

Except in the medical field, studies of sign language interpreters' well-being have mainly been conducted conceptual examination based on historical descriptions and their changes. In the studies involving burnout and stress, the participants have been emphasizing the ambiguity of their roles and very few options they have to maintain their well-being. One reason of such deviations of study methods is the difficulty to recreate the complicated interactions generated at actual communication (Roy, 1993). However, if the argument continues while ignoring this difficulty, it must be inevitable to expand the already existing disagreement between the moral outline and actual behavior. To avoid that risk, it is indispensable to conduct research that defines demand and control, which are classified in the analysis of Dean et al., in the operational dimension. And also, it is needed to empirically assesses the effects of each variable on the interpreting performance. This is the task necessary to inductively verify the character of the job based on the data from simulations and actual situations. It may then be beneficial to conduct comparative studies about the demands of interpretation between spoken languages. Accumulating such studies will enable the development of valuable choices which actually supports interpreters' well-being and their lives.

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