# The Development of a System for Preparing and Analyzing Transcripts on Vocational Counseling and Job Introduction[*]

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## I. Introduction

Dialogue between the job seeker and the employee who engages in vocational counseling and job introduction (hereinafter called "counselor") is fundamental at Japanese public employment agencies. Through dialogue, a job seeker's career path becomes clear. And as a job hunting process, the dialogue gets put into action in the form of job seekers searching for job offers or negotiating with recruiters.

So what kinds of dialogue actually take place between the job seeker and the counselor?

Kayano (2006), and Kayano and Matsumoto (2006) developed a software program called "System for Preparing and Analyzing Transcripts on Vocational Counseling and Job Introduction" to answer the above question. This software makes use of transcripts from a vocational counseling session and clarifies the characteristics and processes of vocational counseling by categorizing utterances based on expression.

This article explains the theory and the model of vocational counseling that the system is based on, the specs of the system and the protocol of the analysis of transcripts. We will also use this system to analyze 29 cases of vocational counseling to examine how the software can help counselors improve their counseling.

### 1. Theory of Vocational Counseling

According to Madsen (1986), vocational guidance targeting young people is affected by changes to the structure of society. This refers to the change from the selection of the labor force to occupational choice during the transitional period from school to work, the change from social ascriptions (such as gender, education, and race) to individual achievement when evaluating

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**Figure 1. Selection and choice (Madsen 1986)**
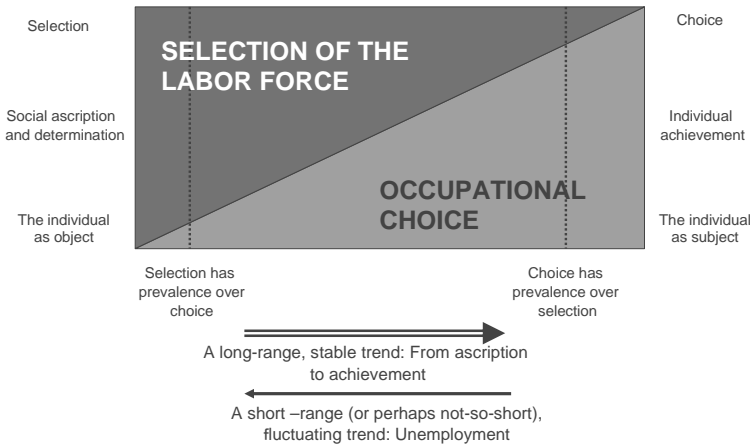


one's ability, and the change from being a passive object of selection to an active subject making the choice (Figure 1).

We believe that vocational guidance from a public employment agency is also affected by similar changes. Thus, the support given to the job seeker will shift from being centered on job introductions to creating purpose and value in working, allowing the job seekers to autonomously choose their own work.

This also means that there will be a shift in the doctrine within public employment agencies, which is currently centered on vocational counseling[1]. We hypothesize that there will be a shift from a trait and factor theory—which places importance on the compatibility of a job seeker to a job—to a constructionist approach. This approach, by way of vocational development theory that places importance on the job seeker to understand oneself and the job that one is pursuing, states that the concept of a career will become a reality through the sharing of this understanding with others.

## 2. Constructionist Approach and Vocational Counseling

The constructionist approach places emphasis on the narrative; that is to say, the client telling the story of their own career. Specifically, a career story

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[1] Vocational counseling precedes job introduction. Its significance enhances the chances of constructing employment relationship (Health, Labour and Welfare Ministry 2004).

outlining what that person has done up to the current point, what they are doing now, and what they will do in the future.

McAdams (1995) states that the present direction can be plotted from the past through the client's narrative, and like observing the future from the present, the client creates their own direction and consistency; that is, their own identity.

The narrative also serves as a means for sharing one's reality with others. According to Collin (2000), many people are losing the concept of sharing time and space in modern society. Thus, relating one's career to another person is an effective means of sharing the concept of time and space with another person.

When these ideas are applied to vocational counseling at public employment agencies, the following three benefits apply when a job seeker relates the story of their own career: (i) The job seeker can share their image of reality with the counselor. (ii) Through an integrated story, the job seeker can find meaning from a chain of events and can be conscious of their consolidated being. (iii) Through (ii), the job seeker can talk about (express) their career to recruiters, thereby sharing their image of reality.
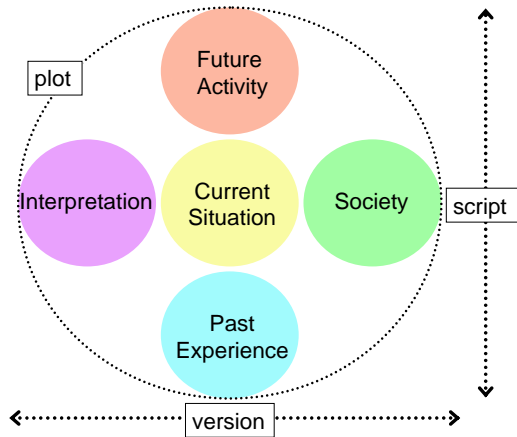
How can the job seeker and the counselor share their images of reality in the context of vocational counseling at a public employment agency? Also, how can a job seeker construct their story? And, in response to the construction of the job seeker's story, what support can the counselor offer and when?

In order to answer these questions, we have developed a prototype system (v1.6) for preparing and analyzing transcripts on vocational counseling and job introduction. This article explains this system, as well as reporting on the results of an analysis of an actual example of this system applied to vocational counseling at a public employment agency.

## II. Development of System

In order to understand how we developed the system, we define the following three terms. They are Story Construction, Topics and Expressional Techniques.

**Figure 2. Construction of story and topic**



## 1. Story Construction

Story construction is a cooperation between the job seeker and the counselor to create a relationship among topics from a perspective of plot, version, and script. (Figure 2) (i) Plot: expresses the main topic and theme of the story. (ii) Script: expresses the events on a time axis (past, present, future). (iii) Version: expresses the perspective of the story being told.

## 2. Topics of Vocational Counseling

A topic is an image of reality shared between a job seeker and a counselor through language. There are five types of topics in vocational counseling. These are: the past experience, current situation, future activities of the job seeker, the interpretation (understanding and inspiration) of those events, and society as the social framework (employment system, labor market, etc).
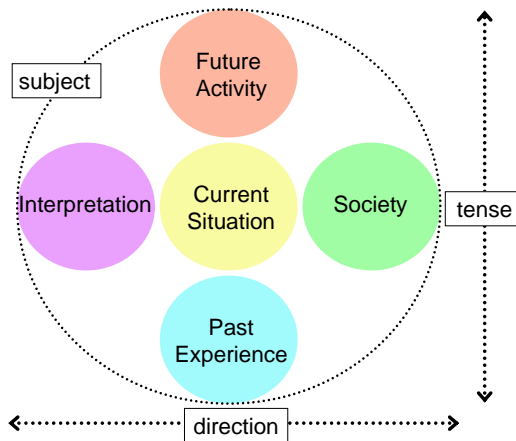
## 3. Expressional Techniques

To create a relationship among topics requires certain skills in linguistic expression. We have termed these skills the "expressional techniques." They are defined as "techniques constructed from multiple linguistic expressional methods used to express one's career, or the vocational counseling processes that enable one to select and carry out an appropriate method of expression in response to the status and flow of the counseling between the job seeker and

**Table 1. Expressional techniques**

| Expressional Technique | | Definition |
|---|---|---|
| Process | Processing | The technique of expression on the influence from a speaker to a listener |
| | Tools | The sub technique of processing |
| Career | Direction | The technique of expression on the direction and distance from a speaker |
| | Subject | The technique of expression on the subject such as sentiment , matter |
| | Tense | The technique of expression on tense such as past, present and future. |

**Figure 3. Construction of story and expressional techniques**



the counselor."

There are two types of Expressional Techniques: Process and Career (Table 1). The Process Technique consists of Processing, with Tool as its sub-technique. The Career Technique consists of Direction, Subject, and Tense.

The Expressional Techniques of Subject, Direction, and Tense are closely related with the construction of a story, and directly correspond to plot, version, and script (Figure 3).

## III. System Specs

This system is a software by which transcripts on vocational counseling and job introduction may be easily prepared and analyzed. We assume that the main users are those employees in Japan public employment agencies who engage in vocational counseling and job introduction. The four objectives of the development of this system are as indicated below:

(i) Users can prepare transcripts on vocational counseling and job introduction efficiently using some fixed format.

(ii) Users can efficiently code each utterance in transcripts according to the Standards of Classification.

(iii)Users can quantify transcripts by using codes according to the Standards of Classification and display numerical values on screen that can be easily understood.

(iv)This system supports the following activities on vocational counseling and job introduction:
　・externalization of experiences
　・case studies
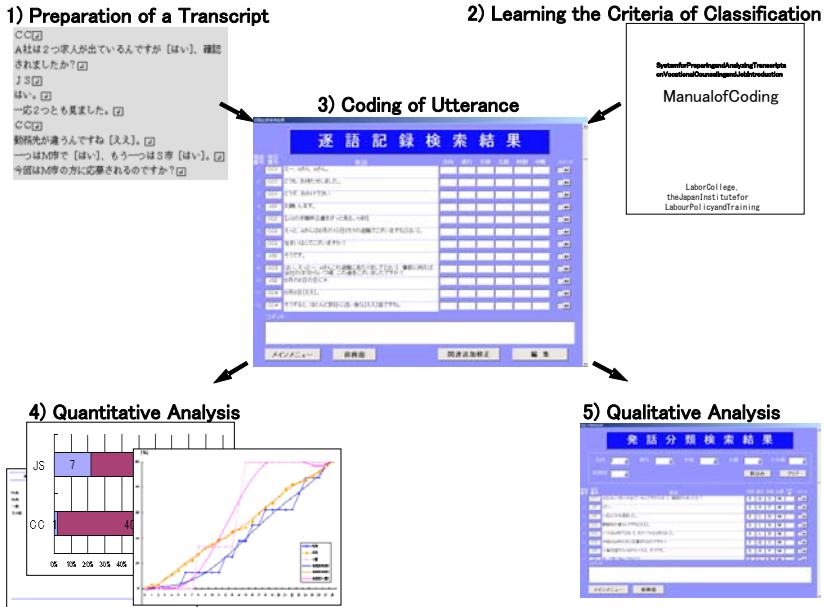　・examination of model

## IV. Procedure

In applying the system, the exchange between the job seekers and counselors was classified by utterance units, and a code associated with each and every utterance.

### 1. Protocol of Transcript Analysis

Protocol is as follows (Figure 4):

1) prepare transcripts from audio recording of vocational counseling,
2) learn the criteria of classification of utterance,
3) enter the transcript into the system and to code utterances,
4) analyze the transcripts by quantity, and
5) analyze the transcripts by quality, for example, searching the specific code of utterance and interpreting their tendencies.

**Figure 4. Protocol of utterance classification**

1) Preparation of a Transcript

2) Learning the Criteria of Classification

3) Coding of Utterance

4) Quantitative Analysis

5) Qualitative Analysis

## 2. Definition of an Utterance

An utterance is a string of words that expresses a certain organized meaning. The following are considered to be utterances: (i) Anything leading up to a period [.] or a question mark [?]. (ii) Anything up to the point where one person ceases speaking and the other person begins. (iii) A period of silence or a pause that continues over a certain length of time.

## 3. Classification of Utterances

Each Expressional Technique is divided into three Expressional Categories (Table 2).

The correlations between each Expressional Category are exclusive in nature, and, in principle, each utterance falls under one of these three Expressional Categories.

For example, Subject of Utterance has three Expressional Categories— Reasoning, Sentiment and Matter. Check to see if the utterance expresses emotion or desire. If it does not, then categorize it as "Matter". If it does, then check if there is an element of cause of emotion or desire. If it does, then

### Table 2. Criteria of classification

| Expressional Technique \ Expressional Category | Low ⟵ Priority ⟶ High | | |
|---|---|---|---|
| Processing | Explanation | Answer | Question |
| Tool | Non-directive \| Repeated \| Directive | neUtral \| Negative \| Positive | Open-ended \| Why \| Closed |
| Direction | Outer | General | Inner |
| Subject | Matter | Sentiment | Reasoning |
| Tense | Now | Past | Future |

\* The underlined letters are the code for each type of utterance.

categorize it as "Reasoning". If it does not, then categorize it as "Sentiment".

Here is an example. Take the utterance "I am happy". Because this utterance includes "happy", which expresses emotion, it is classified as "Sentiment". Take another utterance such as "I am happy because my father came home". This utterance is classified as "Reasoning", because the "Sentiment" includes an element of cause. Take a further utterance such as "Today it is cloudy". This is "Matter", because it has no element of emotion or desire.

## V. Results

This research was aligned with the training course given at the Labour College of the Japan Institute for Labour Policy and Training for counselors at public employment agencies. We requested recordings and transcripts from actual examples of vocational counseling performed by the counselors. We acquired 33 recordings and 35 transcripts from the 36 trainees that participated in the 2005 course. Of the 33 recordings, four were excluded because of bad sound quality that rendered them inaudible, while the remaining 29 case examples were used in this research.

The counseling session is divided into three sets of turns. The sets will be divided as First, Middle and Last. A turn is defined as a pair of a set of utterances by the job seeker (or the counselor) and a set of utterances as a response by the

## Table 3. Average percentage of expressional category

N=29　(%)

| Expressional technique of process | | | Expressional technique of career | | | | |
|---|---|---|---|---|---|---|---|
| Processing | Tool | | Direction | Subject | | Tense | |
| Question 15.6 (5.6) | Closed | 13.3 (5.0) | Inner 12.5 (6.1) | Reasoning | 0.5 (0.6) | Future | 3.3 (2.1) |
| | Why | 0.2 (0.8) | General 3.5 (2.8) | Sentiment | 7.1 (4.6) | Past | 10.0 (5.5) |
| | Open ended | 2.1 (1.5) | Outer 84.0 (6.8) | Matter | 92.4 (4.9) | Now | 86.7 (6.5) |
| Answer 12.8 (5.2) | Positive | 7.8 (3.7) | | | | | |
| | Negative | 1.6 (1.2) | | Supportive Response | | 88.1 (41.9) | |
| | Neutral | 3.4 (2.3) | | Interruption | | 29.9 (24.3) | |
| Explanation 71.6 (10.7) | Directive | 7.1 (4.4) | | Break | | 8.9 (8.1) | |
| | Repeated | 3.8 (2.1) | | Silence | | 2.6 (3.4) | |
| | Non directive | 60.6 (11.7) | | Leaving Seat | | 0.9 (1.2) | |
| | | | | Inquiry | | 4.9 (4.9) | |
| | | | | Others | | 0.6 (1.5) | |

*(  )=standard deviation　　Ave. of total number of turns = 51.3(27.4)　　e. of total number of utterances = 174.8(87.1)

## Table 4. Average percentage of expressional category for job seekers

N=29　(%)

| Expressional technique of process | | | Expressional technique of career | | | | |
|---|---|---|---|---|---|---|---|
| Processing | Tool | | Direction | Subject | | Tense | |
| Question 8.7 (6.2) | Closed | 7.2 (5.5) | Inner 15.0 (9.2) | Reasoning | 0.7 (1.3) | Future | 1.8 (2.5) |
| | Why | 0.0 0.0 | General 0.7 (1.4) | Sentiment | 5.1 (5.3) | Past | 12.2 (8.0) |
| | Open ended | 1.4 (1.8) | Outer 84.3 (9.2) | Matter | 94.2 (6.1) | Now | 86.0 (9.3) |
| Answer 29.6 (15.9) | Positive | 18.2 (10.4) | | | | | |
| | Negative | 4.0 (3.1) | | Supportive Response | | 62.1 (32.2) | |
| | Neutral | 7.4 (6.4) | | Interruption | | 15.2 (13.6) | |
| Explanation 61.7 (16.7) | Directive | 1.9 (2.9) | | Break | | 1.9 (3.6) | |
| | Repeated | 3.8 (2.8) | | Silence | | 1.3 (2.4) | |
| | Non directive | 56.1 (17.6) | | Leaving Seat | | 0.3 (0.2) | |
| | | | | Inquiry | | 0.4 (1.5) | |
| | | | | Others | | 0.2 (0.6) | |

*(  )=standard deviation　　Ave. of total number of turns = 50.6(27.4)　　ve. of total number of utterances = 64.5(36.1)

## Table 5. Average percentage of expressional category for counselors

N=29　(%)

| Expressional technique of process | | | Expressional technique of career | | | | |
|---|---|---|---|---|---|---|---|
| Processing | Tool | | Direction | Subject | | Tense | |
| Question 19.8 (8.5) | Closed | 16.9 (7.4) | Inner 10.3 (6.9) | Reasoning | 0.4 (0.7) | Future | 4.2 (2.9) |
| | Why | 0.3 (1.2) | General 5.0 (4.0) | Sentiment | 7.9 (5.7) | Past | 8.6 (5.0) |
| | Open ended | 2.6 (2.0) | Outer 84.8 (8.2) | Matter | 91.8 (6.0) | Now | 87.2 (6.2) |
| Answer 4.3 (3.4) | Positive | 2.6 (2.7) | | | | | |
| | Negative | 0.4 (0.9) | | Supportive Response | | 25.9 (17.4) | |
| | Neutral | 1.3 (1.7) | | Interruption | | 14.7 (11.7) | |
| Explanation 75.9 (9.3) | Directive | 10.0 (5.5) | | Break | | 7.0 (5.8) | |
| | Repeated | 3.9 (3.0) | | Silence | | 1.3 (1.5) | |
| | Non directive | 62.0 (11.0) | | Leaving Seat | | 0.9 (1.1) | |
| | | | | Inquiry | | 4.5 (4.2) | |
| | | | | Others | | 0.4 (1.0) | |

*(  )=standard deviation　　Ave. of total number of turns = 51.3(27.4)　　e. of total number of utterances = 110.3(56.4)

## Figure 5. Results of utterance processing

＜Job Seeker＞
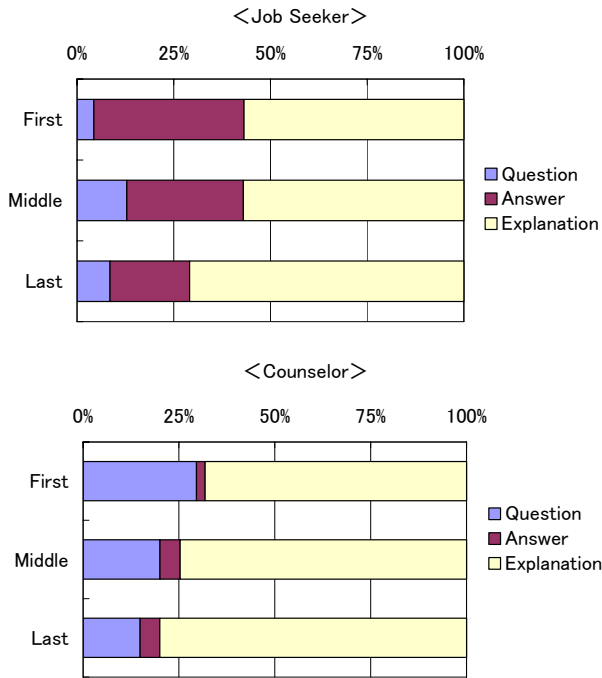
＜Counselor＞

counselor (or the job seeker). The total number of turns differs for each counseling session, but averages approximately 51.3 turns. Each set of turns is one third of the total number of turns.

In applying the system, we calculated the percentage of the methods of expression among all utterances for every Expressional Technique (Table 3, 4, 5). Additionally, we performed a similar analysis on the roles of the job seeker and the counselors and on each time axis, First, Middle and Last in the counseling (Figure 5, 6, 7, 8). The results suggested the following trends in the exchanges between the job seekers and the counselors:

## 1. Processing

Among the utterances by the job seekers, Answer constituted an average of close to 30% versus Question with less than 10%. Among the utterances by the counselors, Answer constituted an average of close to 4% (an almost negligible number) versus Question with less than 20%.

## Figure 6. Results of utterance subject

<Job Seeker>



<Counselor>
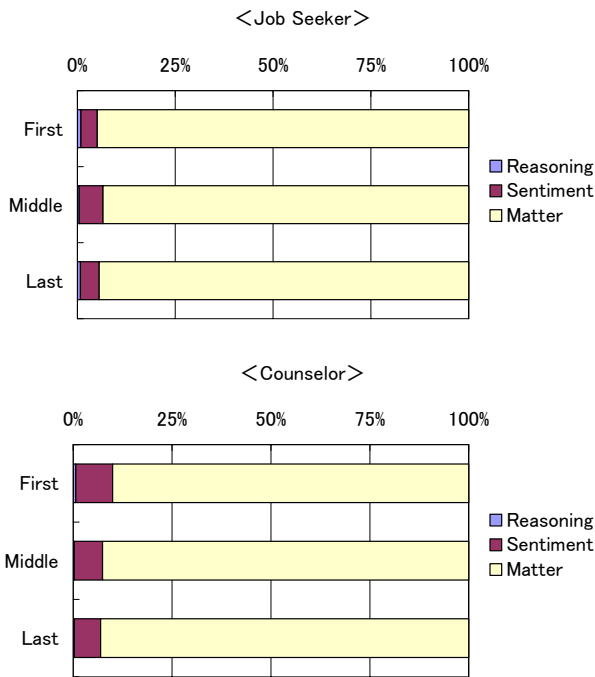


Question demonstrates a tendency to control the statements made by the other person and to lead the counseling. This is especially true of Closed Question, which, in comparison with Open-ended Question, requests the other party's approval or dismissal with the answers "yes" or "no."

In essence, there is a strong tendency for the counselor to control the job seeker's statements and actively move the counseling session along, staying in control. However, in terms of the timeline, with the progression of the counseling session, the average percentage of Question by the counselor and Answer by the job seeker decreases. The tendency for the counselor to control the job seeker's statements and lead the counseling starts off very strongly during the first half of the counseling session and grows weaker as the session enters the second half.

### 2. Subject

The average percentage of utterances combining Reasoning and Sentiment

**Figure 7. Results of utterance direction**

<Job Seeker>



<Counselor>
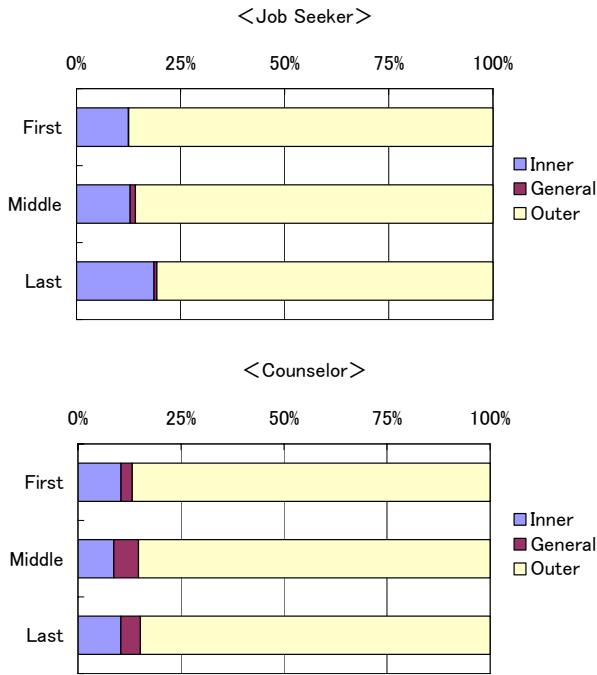


fell short of 10%, a very low number, for both the job seekers and counselors. There were no major changes in this tendency even when it was examined in terms of the timeline.

Generally in psychological treatment and counseling, priority is given to the emotional expressions of the client. Comparatively, the emotional expressions in the vocational counseling examined by this research were not given as much priority.

### 3. Direction

We define Inner as an utterance that expresses speaker's thought, understanding, feeling, and desiring.

The average percentage of Inner was more than 10% for job seekers and 10% for counselors. There is a tendency for the focus to be on the explanation of events and the current situation rather than the speaking of one's own thoughts, ideas, and emotions.

**Figure 8. Results of utterance tense**

<Job Seeker>

<Counselor>
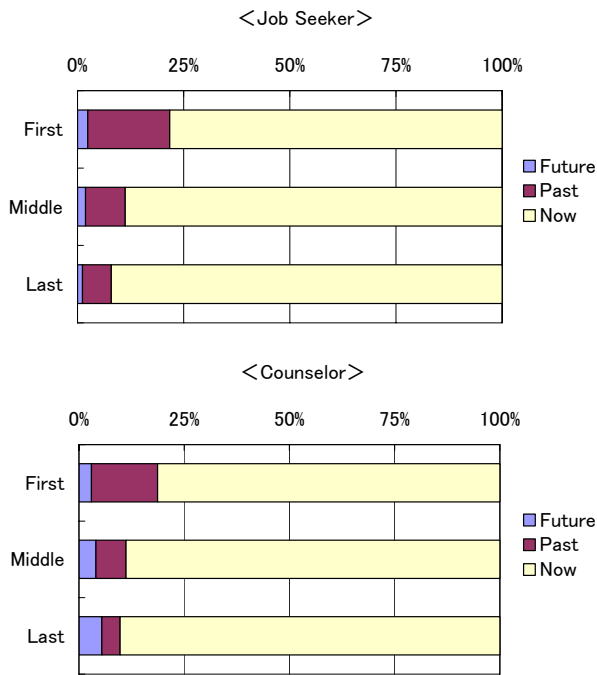
Examining this by timeline reveals that there is no change with counselors, but for job seekers the average percentage increases in the last half of the counseling session. This may be due to the amount of time required to speak one's thoughts, ideas, and emotions.

## 4. Tense

The average percentage of the Now accounts for 90%. There was almost no conversation expressing Future or Past. However, in examining the timeline, the average percentage of Past shows a characteristic change. It is higher for both job seekers and counselors in the first half of the session and decreases in the last half.

Since there were many first-time counseling sessions during the research period, the sessions involved confirming that the job-hunting applications were correctly filled in, and this may account for the increased percentage of references to the past in the first half of the counseling session.

## VI. Discussion

Because of the limited number of samples (29 cases), we were not able to apply statistical analysis on the results. But if we could understand the relationship among the expressional categories between the job seeker and the counselor, then we may be able to assume the following if the counselors were able to control the flow of vocational counseling and the construction of the story:

<u>Processing</u>: If the counselor wants the job seeker to be an active participant, the counselor can lessen the job seeker's passive attitude by making less Question utterances which in turn leads to a reduction in Answer utterances.

<u>Direction</u>: Since it is important to allow ample time for the job seeker to start to talk about themselves, the counselor must patiently wait for that time to come.

<u>Tense</u>: By controlling their Tense, the counselor can also control the job seeker's Tense.

From the standpoint of the constructionist approach, the control of the flow of the vocational counseling and the construction of the story isn't applied only to the career counselor, but also to the job seeker. The job seeker can also control the expressional technique, and can change the flow of the vocational counseling and the construction of the story.

Results suggest that (i) the vocational counselor has a tendency to talk more than the job seeker, (ii) the Expressional categories Outer, Matter, and Now constituted the majority, suggesting that in these vocational counseling cases, not much time was devoted into the construction of the job seeker's story.

We believe that the results may have been affected by the fact that (i) it was the first session for the job seeker in approximately 80% of the cases, and (ii) some time was spent by the counselors providing information, e.g. their employment agency's service and confirming basic details about the job seeker's activity.

Finally, by knowing how the vocational counseling process affects the job seeker's activity and performance after the counseling, we will be able to show the effectiveness of Expressional Technique.

## VII. Future Research

There are three issues that arose regarding system development:

The first issue concerns the usability of the system. Currently, the interface needs to be simplified so that a first-time counselor can run the software without any assistance. In the future, we would like to improve its usability.

The second issue involves further classification of trends in vocational counseling sessions after increasing the number of example cases of counseling sessions, examining the trends associated with the frequency of sessions, the gender and age of the job seekers and counselors, and the combination of all of these factors. The vocational sessions are diverse, but by understanding the overall trend, a counselor will be able to understand the uniqueness of one's own counseling as compared to the average counseling.

The third issue involves the simplification of the classification standards of utterances. Two directions are possible: The first is the automatic classification of utterances by matching appropriate words, if any. The other step is the reduction of the classification standards.

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