Epistolary Education in 21st Century: A System to Support Composition of E-mails by Students to Superiors in Japanese

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Abstract

E-mail is a communication tool widely used by people of all ages on the Internet today, often in business and formal situations, especially in Japan. Moreover, Japanese E-mail communication has a set of specific rules taught using specialized guidebooks. E-mail literacy education for many Japanese students is typically provided in a traditional, yet inefficient lecture-based way. We propose a system to support Japanese students in writing E-mails to superiors (teachers, job hunting representatives, etc.). We firstly make an investigation into the importance of formal E-mails in Japan, and what is needed to successfully write a formal E-mail. Next, we develop the system with accordance to those rules. Finally, we evaluated the system twofold. The results, although performed on a small number of samples, were generally positive, and clearly indicated additional ways to improve the system.

1 Introduction

The development of modern means of Internet communication, such as Social Networking Services (SNS), like Facebook (https://www.facebook.com/), applications for direct chatting, like Messenger (https://www.messenger.com/), exchange of short messages, like Twitter (https://twitter.com/), images and videos, like Instagram (https://www.instagram.com/), or TikTok (https://www.tiktok.com/), fave not diminished the importance of text-based communication, as most of communication on the Internet today is still text-based. Moreover, each of such applications creates unique differences in the language use (Lin and Qiu, 2013; Jaidka et al., 2018). However, the general trend in language use across all such platforms is the colloquialisation of language, or using the language in an informal manner.

Differently to the above, the electronic mail, or E-mail has become a communication tool used by people of all ages recently mostly as a formal means of communication (Chen, 2006). Moreover, in the context of Japanese society, the E-mail, especially when used in formal situations, has a specific set of rules, manners and style, to the extent that specialized guidebooks are required to learn those[1][2]. However, for many Japanese students it is difficult to learn an effective way of writing E-mails without a proper language education, which might result in the person not finding a job after graduating the university.

Typically, E-mail writing education would include lectures where the participants study under the guidance of a teacher. However, this traditional method is inefficient as one lecture is too short to provide support to individual learners, and the cost of finding an appropriate instructor

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[1]https://www.wasabi-jpn.com/japanese-lessons/how-to-write-emails-in-japanese-with-practical-examples/
[2]https://business-mail.jp/mail-writing

is high. Therefore, to support Japanese students in E-mail literacy self-education, in this study, we propose a novel system for the support of writing Japanese E-mails by students to superiors.

The paper is organized as follows. We firstly describe the importance of formal E-mails in Japan, and what are the core rules and elements of a successfully written formal E-mail. Next, we describe the system and its implementation with accordance to those core rules. Furthermore, we provide the results of initial experiments aiming to evaluate the level of E-mail writing skills among Japanese students. Last section concludes the paper and sets paths for further improvement of the system and its implementation in practice in the educational system.

The system is available at m2052400085@std.kitami-it.ac.jp . When testing, send an email with "Test for E-mail composition support system" in the subject line of the E-mail.

2 Importance of Learning E-mail Literacy in Japan

2.1 Rules of Japanese E-mail Etiquette

E-mail is often used as a means of official communication between companies. Japanese university students, begin using E-mails frequently when they start looking for a job. They also use E-mails in communication with professors. In these cases, the E-mail is required to have a specific structure. It should consist of six parts, such as, "Addressee's Name", "Self-Introduction", "Preamble", "Main Body", "Closing Remarks", and "Signature". **"Addressee's Name"** should appear at the top of the E-mail, and include the name, affiliation, or an official position of the addressee. The E-mail has the address information itself, but "Addressee's Name" is needed for the addressee to know if the E-mail is addressed to them in case of the E-mail being sent to multiple people. This element is crucial when sending the message to someone who does not know the sender, but is required even if both sides know each other. **"Self-Introduction"** is necessary to appear after the "Addressee's Name", and include sender's name, affiliation, or an official position. Like "Addressee's Name", although E-mail header contains this information, "Self-Introduction" should appear in the E-mail text anyway. It can be shortened when both sides know each other, but in official situation lack of this part will result in miscommunication, or even disregarding the whole E-mail by the receiver. **"Preamble"** is an element of simple greetings. Before starting with the main text, it is necessary to include this element in the E-mail text. One should avoid simple daytime-based or seasonal greetings (e.g., こんばんは *Konbanwa* "Good evening,"), and instead use formal greeting phrases, such as いつもお世話になります *Itsumo osewa ni narimasu* "I am in your debt for your constant help". **"Main Body"** is the main part of E-mail text. This element describes what the sender wants to discuss.There are no specific honorific phrases to use here, but introduction to the main topic should always be explicit, e.g., X の件について *X-no ken ni tsuite* "Regarding the case of X...", etc. **"Closing Remarks"** should contain simple greetings after the explanation of the topic in "Main Body". This element mainly uses text that requests the mail receiver to review the topic of the email or requests a response from the mail receiver. **"Signature"** is a detailed description of the sender's information, containing affiliation, postal code, address, E-mail address, phone number and URL for website, etc.

2.2 Education Deficiency in E-mail Literacy

Despite the importance of E-mail literacy in Japan, there has been a growing problem of deficiency in its education. For example, (Yan, 2018) studied the structure of E-mail from students to teachers focusing on comparison between Japanese native speakers and Japanese language learners (foreign students, etc.). They conducted a survey on university students asked about their learning experience of E-mail literacy. As a result,13 out of 20 (65%) Japanese students answered they never learned E-mail literacy. In January 2020, we conducted a similar survey for

Input text → Input Section [Text cleaning → Sentence segmentation] → Analysis Section [E-mail structure analysis] → Result → Output Section [Selection of advice text] (Find advice responses / Fetch response) → Output text

E-mail sentence pattern database

Advice responses database

Addressee's Name — OK
Self-Introduction — OK
Preamble
Closing Remarks — OK
Signature

北見工業大学2年の北見太郎と申します。
My name is Taro Kitami, a second year student at Kitami Institute of Technology.
田中先生が関連されている解析学を履修しています。
I am taking the analysis lectures lead by Professor Tanaka.
先生の部屋に何回がお伺いしたのですがご不在でしたのでメールにて連絡させて頂きました。
I visited your room many times, but was not able to catch you, so I'm contacting you by email.
期末試験評価の件でお聞きしたいことがあります。
I would like to ask you about the final exam evaluation.
解析学の試験に臨むにあたり勉強を重ねたのですが、先ほど確認したところ私の試験結果の成績が58点で不可判定とされていました。
I studied a lot before taking the analysis exam, but as I confirmed earlier, my test result was only 58 points and rated as insufficient to pass.
単位認定では60点が条件ですのでこのままでは再履修となってしまいますが、今期開講分の出席数も足りていると思われますので、解析学2の単位をレポートや再試験等の対応で認定して頂けないでしょうか。
Since 60 points are the condition for approval, at this point I will have to take the course again, but as it seems that the number of my attendances for this course is sufficient, would it be possible to suffice the remaining credits with a report and a re-examination?
もし何か機会を頂けるようでしたら先生と一度直接お話をさせて頂きたいのでご都合の良い時間があれば教えて頂けると嬉しいです。
If it is possible, I would like to talk directly to you, so I would be happy if you could tell me the time convenient to you to visit you.
不躾であることは承知ですが検討の程宜しくお願い致します。
I know that I'm not very disciplined, but thank you for your consideration in advance.

[
'北見工業大学2年の北見太郎と申します。',
'先生の部屋に何回がお伺いしたのですがご不在でしたのでメールにて連絡させて頂きました。',
'期末試験評価の件でお聞きしたいことがあります。',
'解析学の試験に臨むにあたり勉強を重ねたのですが、先ほど確認したところ私の試験結果の成績が58点で不可判定とされていました。',
'単位認定では60点が条件ですのでこのままでは再履修となってしまいますが、今期開講分の出席数も足りていると思われますので、解析学2の単位をレポートや再試験等の対応で認定して頂けないでしょうか。',
'もし何か機会を頂けるようでしたら先生と一度直接お話をさせて頂きたいのでご都合の良い時間があれば教えて頂けると嬉しいです。',
'不躾であることは承知ですが検討の程宜しくお願い致します。'
]

・冒頭のあいさつが無いようです。
「お世話になっております。」といった表現を、文の書き出しに書くと効果的です。

・There seems to be no Preamble.
It is effective to write an expression such as「お世話になっております。」before you start to write the body.

・署名が無いようです
署名は、メールにおける自身の名刺のようなものです。自分の名前や連絡先を忘れずに書きましょう。

・There is no Signature.
Signature is like your business card at the E-mail. Do not forget to write your name or contact information.
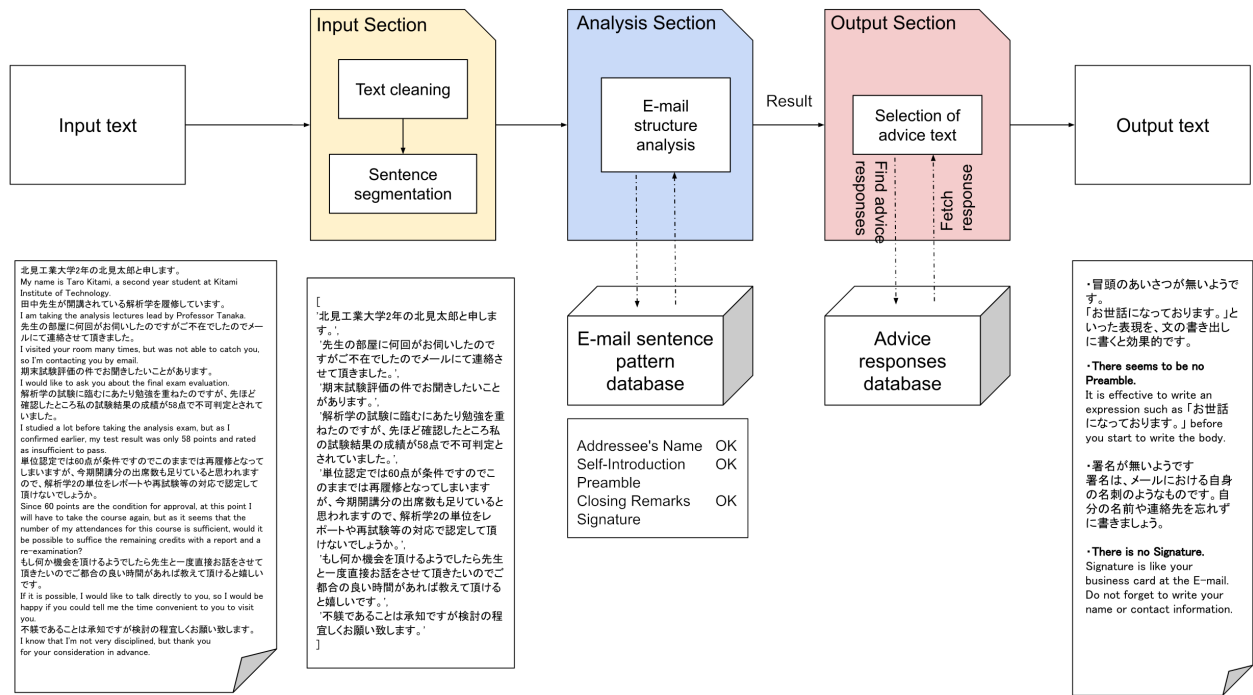
Figure 1: System overview.

students of Kitami Institute of Technology. As a result, 16 out of 23 (70%) students answered they never learned E-mail literacy. Although the sample was not large it is noticeable, that many Japanese students never learn about how to write E-mails, suggesting they do not know the rules of Japanese E-mail etiquette. This motivated us to help them and provide a system providing support and advice in writing E-mails to superiors.

3 E-mail Composition Support System

3.1 System Overview

We developed a system for E-mail structure analysis and providing a support in the form of advises about the composition of the E-mail, with an initial end-user group being university students in Japan. After analysing the contents of the email the system outputs the advice text according to the set of rules of Japanese E-mail etiquette. In the assumption the system is meant to be used as an educational tool to help Japanese students increase their E-mail literacy. The system can be separated into three main sections, namely, "Input Section", "E-mail Contents Analysis Section", "Output Section". **"Input Section"** is responsible for obtaining the text of the E-mail, and performing initial preprocessing such as text cleaning (removing unnecessary spaces, and symbols) or sentence segmentation for further analysis. **"Analysis Section"** is responsible for a structure analysis based on specific E-mail patterns. These patterns were created from the annotated data of Japanese E-mail examples collected in advance. **"Output Section"** is responsible for providing specific advises depending on the result of analysis from the previous section. Moreover, this section provides explanations about how to successfully compose E-mails in Japanese, with particular focus on the missing elements. These advises were created based on the guidelines collected from a number of guidebooks for Japanese E-mail etiquette (Fujita, 2013; Setsuko Murano, 2014; Iwamoto, 2016; Matsuoka, 2017; Tojo, 2010; Mizue, 2017; Hirano, 2017).

3.2 Data Collection and Annotation

In order to analyse E-mail text, we collected 116 example E-mail sentences from part of previously mentioned guidebooks and annotated the elements of each E-mail. Annotation task was

Addressor's Name	田中教授 Professor Tnaka,
Preamble	お世話になっております。 Hello sir, I hope all is fine.
Self-Introduction	北見大学　デザイン工学科3年　北見太郎と申します。 My name is Taro Kitami and I'm a 3rd year student in the Department of Design Engineering at Kitami University.
Main Body	今回は、解析学Ⅰのレポート提出の件で、ご連絡いたしました。 I'm contacting you about submitting a report for Analysis 1 class this time. 解析学Ⅰのレポートを添付させていただきます。 The report for Analysis I is attached.
Closing Remarks	お忙しいところ恐縮ですが、ご確認のほどお願いいたします。 I'm terribly sorry to disturb you, but I would appreciate it for your confirmation.
Signature	－－－－－－－－－－－－－－－－－－－－－－－－－－－－－－－－－－－－ 北見大学　デザイン工学科 3年　北見太郎 mail　test@std.kitami-it.ac.jp 〒 090-8507 国立大学法人 北見大学 北海道北見市田舎町1番地 －－－－－－－－－－－－－－－－－－－－－－－－－－－－－－－－－－－－

Figure 2: Annotated sentence

done by 7 annotators, who annotated sentences of the examples with classes representing each necessary element of the E-mail. Using the data from each elements, we manually extracted patterns that best represent each E-mail element, to use them in the analysis.

3.3 System Implementation

The main part of the E-mail Composition Support System was written in Python3. The input text for the analysis was obtained via custom Mail server, as is the output with the advises provided to the users. As for the mail server, we used "Postfix" (http://www.postfix.org/) as the SMTP Server, and "Dovecot" (https://www.dovecot.org/) as the POP/IMAP Server. Combining these software, the system can receive E-mails from the users and send the results of analysis to the users automatically.

4　Evaluation Experiments

4.1　Validation on Development Dataset

To evaluate our system, we performed two experiments. Firstly, we tested the system on data containing 20 Japanese E-mail examples collected from Japanese E-mail etiquette guidebooks, that were not included in initial training data.

As a result of this experiment, in 17 out of 20 cases (85%) the system was able to detect all the elements and provide output confirming that the E-mail contains all the necessary elements. When it comes to the error cases, the reason for the three cases where the system generated incorrect output, was that the E-mails contained sentence patterns that were not originally included in the system, thus the system could not detect some elements correctly.

We improved the analysis performance by adding the new patterns the system could not analyse correctly in the first experiment.

Input text	Correct cases	Incorrect cases	Total
example sentences	17	3	20
written by students	6	0	6

Table 1: Results of experiments.

4.2 User-based Evaluation

In the second experiment, we tested the system on E-mails written by six Japanese students to test the performance of E-mail structure analysis in practice. As a result of the second experiment with improved system, in all cases the system detected the presence or absence of the elements, and provide output that adapt the result of analysis. All of those cases represented specifically prepared scenarios where the students were to ask their supervising professors for help. Although the results were positive, we acknowledge that we need more subjects set in various scenarios to have a more objective evaluation of the system.

5 Conclusion and Future Work

In this paper, we described an E-mail Composition Support System aimed to be used as an educational tool for Japanese students to increase their E-mail literacy. The development of this system was stemmed by two factors, namely, (1) the importance for the young people in Japan to master E-mail literacy, and (2) the deficiency in its education in reality. The twofold evaluation of the system showed positive results, and clearly indicated ways to further improve the system. In the near future we plan to implement this system in the educational curriculum for the classes on Communication Literacy, which will also allow additional robust evaluation on at least five hundred students.

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