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***A Review and Prospect of Cumulative Prospect Theory Research***

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**Abstract**

In view of the wide adoption and various research extensions of Cumulative Prospect Theory (CPT), this paper represents an attempt to perform a systematic review of articles that have employed CPT so as to explore its research trajectories and trends over time. A literature retrieval from Web of Science (WOS) yields a corpus of 495 articles in relation to CPT spanning over 2001-2020. The topic modeling method featuring Latent Dirichlet Allocation (LDA) is performed to produce topic trends and prospects concerning the corpus. For this purpose, we make use of the RStudio implementation of relevant packages for data preprocessing, modeling and visualization. The results are mainly categorized by dividing the articles into types of CPT exploration and parameter elicitation, the interplay and comparison between CPT and other theories and methods, and domain-specific applications by utilizing CPT to expound decision behavior. The conclusion drawn from the findings suggests that the potential active and new lines of CPT research in the future could be aimed more at route choice in transportation networks as well as decision making on the trade-off associated with issues of energy and environment.

**Keywords:** CPT, LDA, Topic Models, Literature Analysis, RStudio

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## 1. Introduction

Uncertainty is an inherent part of decision making. In view of the likelihood and probability of an outcome, the ongoing quest to ensure decision-makers' behavior during the process of decision making has been a continuing research in the social sciences for more than 280 years (Bernoulli, 1738/1954). In the context of bounded rationality theory (Simon, 1957) and rank-dependent expected utility (Quiggin, 1982), Tversky and Kahneman (1992) introduced Cumulative Prospect Theory (CPT) as an alternative to other normative and descriptive models of decision making under uncertainty.

Since its debut, CPT has been one of the most favorable descriptive decision-making models (Zhou et al., 2017). At the time of writing, the original paper, "*Advances in Prospect Theory: Cumulative Representation of Uncertainty*" (Tversky and Kahneman, 1992), has been cited 15,683 times (computed by Google Scholar). Widely employed in various domains like behavioral economics, policy formulation, behavioral finance, transportation, and energy management, CPT has been a theoretical lens by researchers conducting empirical studies of choice under uncertainty and risk. However, there is limited attention paid to reveal the underlying research inclination and preference. Such expanding and heterogeneous contributions to CPT make obtain a general overview and perspective of the hidden research topics embedded in CPT literature a complex task.

To address the aforementioned shortcomings, in this paper we adopt topic modeling method based on Latent Dirichlet Allocation (LDA) algorithm, implemented by LDAvis and topic model packages in R, to unveil how CPT-related studies had developed in the first two decades of the twenty-first century, and to have a picture of the prospect of CPT-related research.

## 2. Background

### 2.1. Cumulative Prospect Theory (CPT)

Relying on economic experiments, CPT was initiated to address decision making, either uncertain or risky, pertaining to any number of outcomes (Tversky and Kahneman, 1992). Instead of a normative model, CPT is deemed a descriptive model of decision making, which makes it close to or in agreement with true behavior. To reflect the nature of a descriptive model, CPT features a subjective value function and a subjective probability function (probability weight function, PWF). That is, a PWF reflects probabilistic distortion. A subjective value function  $v(x)$  can be depicted in the form of a two-part power function (Tversky and Kahneman, 1992):

$$v(x) = \begin{cases} v^+(x) = x^\alpha, & x \geq 0; \alpha > 0, \\ v^-(x) = -\lambda(-x)^\beta, & x < 0; \beta > 0; \lambda \geq 1 \end{cases} \quad (1)$$

where  $v(x)$  is the subjective utility with respect to option  $x$ ,  $\alpha$  is the concavity of the value function for gains ( $x \geq 0$ ), and  $\beta$  is the convexity of the value function for losses ( $x < 0$ ).  $0 < \alpha < 1$  and  $0 < \beta < 1$  suggest diminished sensitivity for losses and gains.  $\lambda$  denotes a loss-aversion coefficient.  $\lambda \geq 1$  indicates greater preference for gain than for the same loss, which reflects that the loss region of subjective utility is steeper than the gain region. As suggested by function (1), the pattern of a subjective value function  $v(x)$  is shown in Fig. 1.

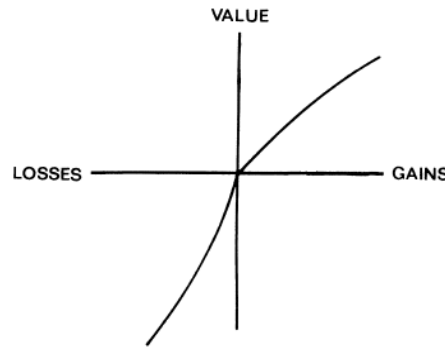


Figure 1: Shape of subjective value function (Kahneman, 1979).

The function form (1) tells that the reference point of gain and loss is 0. Let the reference point (determined by the decision maker) as  $x_0$  ( $x_0 \neq 0$ ), and the function (1) can be therefore equivalently written as below:

$$v(x) = \begin{cases} v^+(x) = (x - x_0)^\alpha, & x \geq 0; \alpha > 0, \\ v^-(x) = -\lambda(-x + x_0)^\beta, & x < 0; \beta > 0; \lambda \geq 1 \end{cases} \quad (2)$$

Similarly, a subjective probability function can also be described as a two-part power function as follows (Tversky and Kahneman, 1992):

$$\pi(p) = \begin{cases} \pi^+(p) = \frac{p^\gamma}{(p^\gamma + (1-p)^\gamma)^{1/\gamma}}, & x \geq 0, \\ \pi^-(p) = \frac{p^\delta}{(p^\delta + (1-p)^\delta)^{1/\delta}}, & x < 0 \end{cases} \quad (3)$$

where  $\pi^+(p)$  is the probability of subjective gains,  $\pi^-(p)$  is the probability of subjective losses,  $p$  is the actual probability of gains and losses,  $\gamma$  and  $\delta$  are the sensitivity of gains and losses, and  $\gamma \leq 1$  and  $\delta \leq 1$ . Accordingly, the pattern of a subjective probability function  $\pi(p)$  is shown in Fig. 2. Corresponding the so-called PWF, both function (3) and Fig. 2 show that moderate and high probabilities are under-weighted and low probabilities are over-weighted by decision makers.

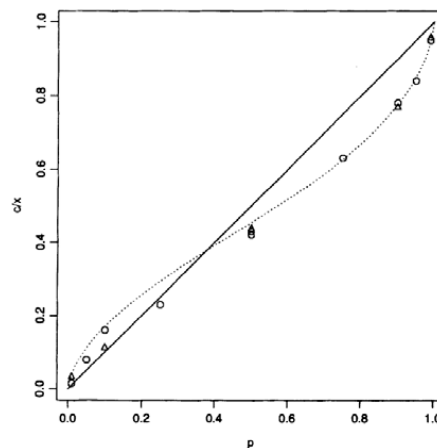


Figure 2: Shape (dotted curve when  $\gamma \neq 1$  and  $\delta \neq 1$ ) of subjective probability function (Tversky and Kahneman, 1992).

By combining functions of (2) and (3), the prospect value of CPT can be described as the sum of the subjective gains and subjective losses as follows:

$$U = \sum (v^+(x) \cdot \pi^+(p)) + \sum (v^-(x) \cdot \pi^-(p)) \quad (4)$$

According to functions (2), (3) and (4), it is obvious that CPT contains five parameters, and when  $\gamma = 1$  and  $\delta = 1$ , we'll have the standard linear weighting. The function form of (4) indicates that one will pursue risks or avoid risks in the conditions of losses or gains respectively. It also suggests that one is more concerned with losses than with gains (Tversky and Kahneman, 1992).

As an alternative to normative models like Expected Utility Theory, CPT has garnered a great deal of support, applications and extensions. In the field of transportation, Schwanen and Ettema (2009), Gao et al. (2010), Li and Hensher (2011), Chow et al. (2010), and Zhang et al. (2018) used CPT to study route choice in traffic networks. Breuer and Perst (2007) employed CPT to analyze discount reverse convertibles and reverse convertible bonds. In view of portfolio optimization, Omane-Adjepong et al. (2019) adopted CPT to classify and select cryptocurrencies. Félix et al. (2019) made use of CPT to explain the overpricing of out-of-the-money single stock calls. In the domain of energy management, researchers resorted to CPT to study the determination of the optimal photovoltaic/battery energy storage/electric vehicle charging stations portfolio (Liu and Dai, 2020), the site selection of photovoltaic power plants (Liu et al., 2017), and the capacity credit of wind power simulations for various wind time series interval lengths (Wilton et al., 2014). The trace of CPT relevant research can also be found in bidding decision on land auction (Peng and Liu, 2015), government purchase of home-based elderly-care services (Lu et al., 2020), the influence of emotions specific to risk on flood insurance demand (Robinson and Botzen, 2020), the selection of new product development concept (Wang et al., 2018), and addressing the risk decision-making problem in emergency response (Liu et al., 2014).

## 2.2. Literature analysis

On a given subject, the analysis of literature review allows research trends as well as potential gaps leading to new studies and findings to be uncovered (Levy and Ellis, 2006). Literature analysis is considered as an imperative basis and approach to reveal appreciation on new research themes. This connection is manifested by literature reviews of various publications regarding numerous sciences (Cronin et al., 2008; Jesson and Lacey, 2006).

Without the help of new information and communications technology (ICT), large amount of time and efforts are mandatory to conduct thorough and comprehensive literature analysis in pursuit of new research topics of a given subject. With the facilitation and advancement of ICT and without the limitation on time and locations, these days scholars and researchers of different academic disciplines are able to access multiple online libraries and databases so as to retrieve a pile of articles on a given research subject. Nevertheless, in order to extract useful insights and knowledge from high volumes of papers retrieved, digesting the contents as well as grasping the contexts require determination and great efforts. To deal with such a challenging task, the measures of text mining (TM) based on ICT are introduced and employed to investigate the literature and to uncover trendy studies over journals and time. In order to generate a body of knowledge of the literature in question, associated terms and vocabularies (a sequence of “n” words in the name of n-gram) need to be distilled and

classified from large texts (Delen and Crossland, 2008). TM is particularly applied to examine unstructured or semi-structured datasets like text documents (Fan et al., 2006). To reveal the academic research trends, a number of studies have adopted TM techniques to investigate papers in a variety of journal databases. Lee et al. (2010), Hung (2010), Sharma et al. (2018), Zhai et al. (2015), and Kim (2016) applied TM to research trends in the fields of information science (digital library), education (e-learning), machine learning, biomedicine, and medical informatics respectively.

As a specific type of algorithms applied to TM, by taking the number and distribution of terms into account to model a specific number of different topics from unstructured datasets, a method called Latent Dirichlet Allocation (LDA) was proposed by Blei et al. (2003). Such a manner can assist researchers to recognize topics related to the gap for prospect studies (Moro et al., 2015).

### **2.3. Topic Models and Latent Dirichlet Allocation (LDA)**

In the setting of TM techniques, topic models are a sort of unsupervised statistical machine learning methods. The purpose of topic models and associated analytics is to summarize the topics from a corpus in a way of reduced human resources. The so-called topics are clusters designated by grouping the words, which are unknown beforehand. For unstructured datasets without reference to known outcomes, unsupervised machine learning is applied to infer underlying structure, resemblances and distinct patterns of data and therefore to make sense of data. Topic models came into being through the research on searching, indexing and clustering voluminous unlabeled and unstructured documents (Sun et al., 2017). Various applications, like social networks, images, genetic research (Blei, 2012), opinion classification, sentiment discovery, trend detection, and big data research (Shivashankar et al., 2011; Hu et al., 2014), communication similarity in political movements (Stier et al., 2017), gauging framing and meaning nuances in cultural sociology (DiMaggio et al., 2013), and contemporary art discourse (Roose et al., 2018) had employed topic models to reveal the main themes and patterns residing in a huge amount of data in those fields.

In the context of social sciences, LDA is the foremost and the most adopted variant of topic modeling methods (Zhao et. al, 2014; Saari 2019; Pääkkönen and Ylikoski, 2020). As a specific algorithm of topic modelling applicable for massive collections of documents (Blei, 2012), without training data, prior labeling and annotations, LDA can be utilized to investigate thousands or millions of documents where human annotation is impossible (Blei, 2012; Sun et al., 2017). LDA captures the perception of documents bearing multiple topics, that is, distinct topics “latently” existing in documents show in different proportions. In other words, each document can be regarded as a mixture of “latent” topics which expound common occurrence of words in documents. Likewise, each topic is treated as a mixture of words, which suggests a combination of ideas with a certain meaning inside the corpus. For instance, the words “decision, risk, uncertainty” and “text, word, document, corpus” usually appear together in CPT-related and LDA-related studies respectively. This means that a topic is a group of words that frequently appear in the documents of a corpus. Similarly, those clusters of words also have higher probabilities (weight assigned) in a topic, and those words can also have higher probability in some topics. As a statistical model, LDA therefore represents such a perception by an imaginary random (generative) process that produce documents. To be specific, it is assumed that topics are prescribed before associated documents and data. Here, a “Dirichlet distribution” reflects the distribution of those

prescribed topics, and it is applied to designate the words in a document with respect to different topics (Blei, 2012).

In essence, as a type of generative probabilistic models for a corpus, LDA is a Bayesian hierarchical modeling transcribed in three levels (Blei et al., 2003). It is suggested that topics and word mixtures are represented by Dirichlet distributions, which generate documents accordingly. As illustrated by Blei (2012), Fig. 3 represents the probabilistic graphical model for LDA algorithm. Random variables are denoted by a node. Unshaded and shaded (grey) nodes depict hidden (latent, i.e., existing but neither known nor seen directly) and observed random variables separately in the order given. Rectangular plates indicate the replication of variables. Plate K, M and N are the number of topics, document and word respectively. In other words, the rectangle M denotes the documents, the corpus, we are going to investigate. The rectangle N indicate the word positions within a certain document. As aforementioned, Fig. 3 also expresses that LDA features a three-level Bayesian hierarchy. Hidden random variable  $\alpha$  and  $\beta$ , as input parameters, denote the topic distribution of each document and word distribution of each topic respectively. The observed random variable W, as the output, are the words that one can see and read. That is, given the words W, the conditional (posterior) distribution of the rest hidden variables are performed. The determination of each topic's word distribution  $\phi$  in K is derived from the input  $\beta$ . In a similar fashion, each document's topic distribution  $\theta$  in M is generated from the input  $\alpha$ . The random variable Z refers to the topic assignment for each specific term in W, which is developed from  $\theta$ . Different topics are described by the terms output from LDA. In a word, LDA assumes topics, which can be revealed by analytical measures, of a corpus exist in a latent space.

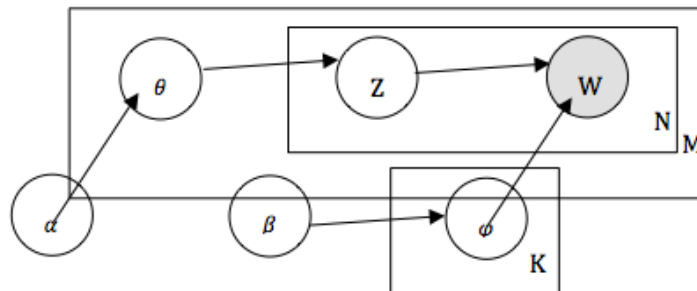


Figure 3: LDA probabilistic graphical model adapted from Blei (2012)

Equivalent to Fig. 3, as explained by Blei (2012), the probabilistic graphical model for LDA can be represented as equation (5):

$$p(\theta, z, w | \alpha, \beta) = p(\theta | \alpha) \prod_{n=1}^N p(z_n | \theta) p(w_n | z_n, \beta) \quad (5)$$

During the past decade, LDA has been wildly applied in various academic disciplines. Fields like social network analysis (Weng et al., 2010), politics (Grimmer and Stewart, 2013), journalism (Rusch et al., 2013), cultural sociology (Mohr and Bogdanov, 2013), business intelligence (Moro et al., 2015), communication research (Maier et al., 2018) have employed LDA to the studies on research trends.



### 3. Methodolog

#### 3.1. Literature acquisition

In this study, only “Web of Science (WOS)” was accessed as our literature (including journal articles and conference proceedings) source. The terms “cumulative prospect theory” were selected as our only query. With quotation marks to make the terms an exact phrase, the search in question was input by *Topic* inquiry of the *Basic Search*. As per the input, WOS sought the fields of literature title, abstract and author keywords. Published literature between the years 2001 and 2020 was examined. The distribution over the designated time is shown in Fig 4. This study only examined the title, abstract and author key words for our purpose. At the time of writing, the corpus composed of 495 research papers were retrieved.

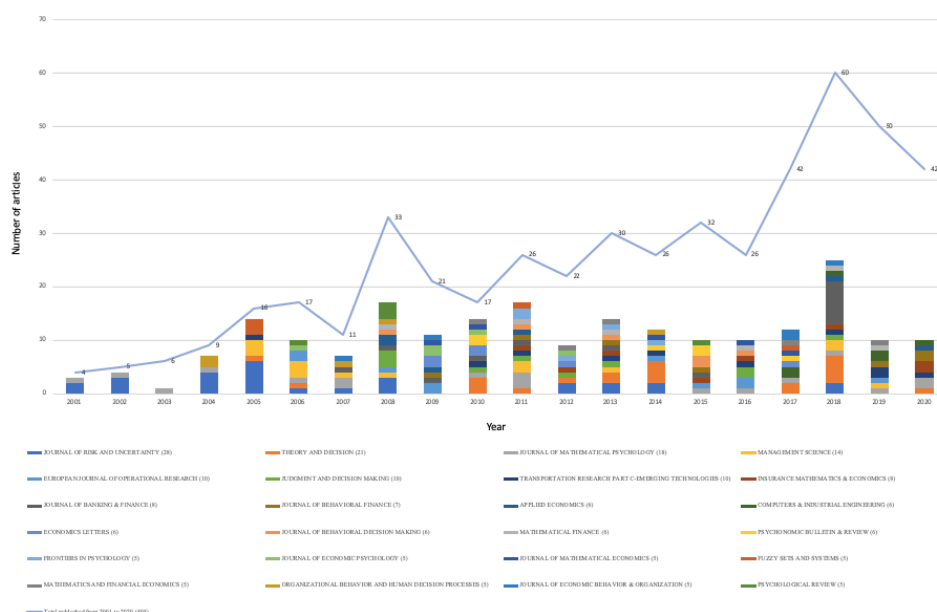


Figure 4: Distribution of number of articles over year (n=495).

In Fig. 4, the line graph shows the number of articles published by year. The corpus of 495 documents is contributed by 214 types of journals and conference proceedings. In terms of the release frequency over that period, the top three journals are the “Journal of Risk and Uncertainty (n=28; 5.66%),” “Theory and Decision (n=21; 4.24%),” and “Journal of Mathematical Psychology (n=18; 3.64%).” Though fluctuations begin in 2007 and thereafter, the number of circulated articles, peaking at 60 in 2018, increases in general in the timeframe. The bar chart in Fig. 4 illustrates 24 journals (11.21% of the journal source) that at least have five CPT-related articles over the period of 20 years, which accounts for 217 documents (43.84% of the corpus).

In view of the color varieties of the bar chart as well as the distances (gaps) between the apogees of the bars and corresponding points in line graph in Fig.4, it suggests that the source of the articles had been getting more diversified with the passage of time. As shown in Fig. 5, the trend of the portions (ranging between 87.5% in 2005 and 20.00% in 2019) attributed by these 24 journals had gone down as a whole. It also tells the concentration and dominance of journal sources had been towards lower. Fig. 4 and Fig. 5 both suggest that the spillover effects of CPT on other academic disciplines.



Figure 5: Dominance of the 24 journals (taken as a whole) in the corpus over year.

### 3.2 Data preprocessing

In this step, RStudio (version 4.0.3) was installed and run as the workspace. Commands first tokenized retrieved texts by splitting them into sentences, decomposing sentences into words, lowercasing the words, and removing punctuation. Next, stop words (e.g., “the”, “and”, “or”, “for”, etc.), numbers, non-alpha numeric characters were all removed. Finally, excutions lemmatized and stemmed various forms of a word to one single form or its root form (e.g., change "makes", "making", or "made" to the lemma "make"). The above tasks were performed by the “tm” package (version 0.7-8), a framework for text mining (Ingo and Kurt, 2008; Ingo et al., 2008), within RStudio.

For the scalar value of Diriclet distribution hyperparameter, 0.02 was set for the distributions over the vocabulary and topics. Gibbs’s sampling number was set to 5,000 for scanning the corpus. Fig. 6 demonstrates the data preprocessing executed by commands of “tm” package. As an example, Fig. 6 (a) and Fig. 6 (b), snapshotted from the raw data in CSV file and the console of RStudio, are the original text and the text after preprocessing respectively.

<p>Performance on an intuitive symbolic number skills task-namely the number line estimation task-has previously been found to predict value function curvature in decision making under risk, using a cumulative prospect theory (CPT) model. However there has been no evidence of a similar relationship with the probability weighting function. This is surprising given that both number line estimation and probability weighting can be construed as involving proportion judgment, that is, involving estimating a number on a bounded scale based on its proportional relationship to the whole. In the present work, we re-evaluated the relationship between number line estimation and probability weighting through the lens of proportion judgment. Using a CPT model with a two-parameter probability weighting function, we found a double dissociation: number line estimation bias predicted probability weighting curvature while performance on a different number skills task, number comparison, predicted probability weighting elevation. Interestingly, while degree of bias was correlated across tasks, the direction of bias was not. The findings provide support for proportion judgment as a plausible account of the shape of the probability weighting function, and suggest directions for future work.</p>	<p>22</p> <p>performance intuitive symbolic number skills tasknamely number line estimation n taskhas previously found predict value function curvature decision making risk using cumulative prospect theory cpt model however evidence similar relationship probability weighting function surprising given number line estimation probability weighting can construed involving proportion judgment involving estimating number bounded scale based proportional relationshi p whole present work reevaluated relationship number line estimation pro bability weighting lens proportion judgment using cpt model twoparameter p robability weighting function found double dissociation number line estimation bias predicted probability weighting curvature performance different number skills task number comparison predicted probability weighting elevation interes tingly degree bias correlated across tasks direction bias findings provi de support proportion judgment plausible account shape probability weight ing function suggest directions future work</p>
(a)	(b)

Figure 6: Text (research abstract) comparison before (a) and after (b) data preprocessing (entry 22 in the corpus as an example).

### 3.3 Topic modelling by LDA

In this research, due to a lack of knowledge about the trends of analyzed CPT-associated body of literature, the topic modeling features LDA is chosen. The R package of “topicmodels” (version 0.2-11) was selected and performed to carry out latent topic extraction (Hornik and Grün, 2011). The approach (metric) proposed by Arun et al. (2010) was employed to identify the number of topics of the corpus in question. At least 50 meaningful words were grouped to represent a topic, and the top 50 topics were visualized in the analysis radar.

### 3.4 Topic visualization

Names and interpretation were assigned to each extracted LDA topics. We utilized the visualization tool LDAvis (version 0.3.2) to generate a 2D topic map with axes based on interpreted topic grouping (Sievert and Shirley, 2014). LDAvis processes multidimensional scale analysis to bring about the axes of a bi-dimensional space. It depicts each topic by a circle distributed in the above-mentioned space. The area of a circle denotes the relevance of the corresponding topic to the corpus. The distance between the centers of circles stands for topic similarity (the more similar the shorter).

## 4. Results

By deleting repetitions, 1,451 unique terms were obtained from the corpus. Terms not greater than 5-time repetitions were ignored. Accordingly, Fig. 7 demonstrates the 30 most frequently appearing topics of the corpus.

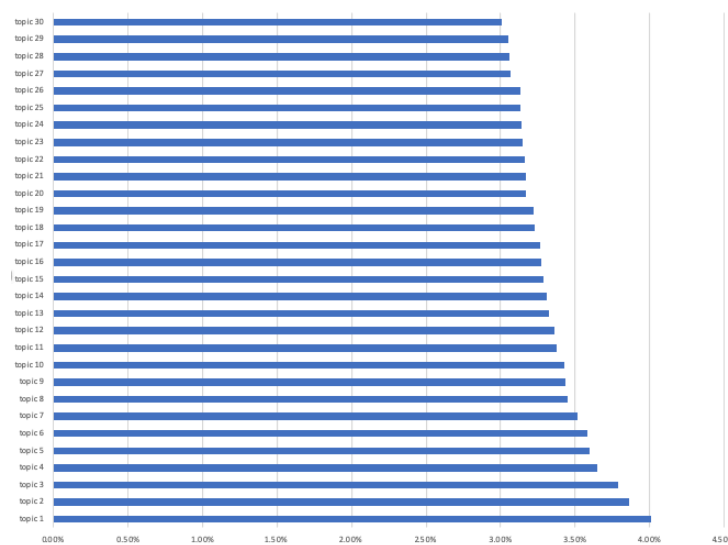


Figure 7: The distribution of top-30 most frequent topics of the corpus.

Given the value computed by the metric proposed by Arun et al. (2010), the inferred optimal number of topics is  $K=50$ . Gibbs's was applied for sampling to render the associated parameters and inference (Lynch, 2011). By LDAvis, the distributions of the corpus-wide and topic-specific terms are shown in Fig. 8.

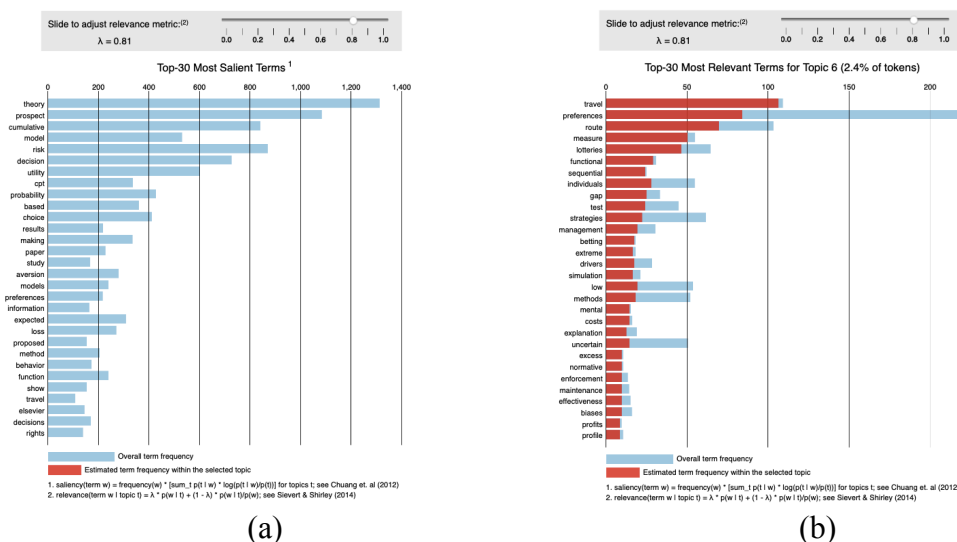


Figure 8: Distribution of the corpus-wide and topic-specific terms by LDA inference.

According to Fig. 8 (a), the top-30 most noticeable terms in the analyzed corpus are shown. In consonant with intuition, the terms that constitute “cumulative prospective theory” top the horizontal bar chart. The term “theory” ranking above the rest suggests that “theory” not only refers to CPT but also relates to other theories like bounded rationality theory, rank-dependent expected utility and expected utility theory, when it comes to behavioral decision-making research. The second highest term “prospect” can refer to CPT as well as its predecessor PT; additionally, it can be solely extracted to explain the meaning and concept of prospect itself. Noticeably, “risk” comes in third. It suggests that, aside from CPT itself tackling risky decision making, the majority of the studies deal with the contexts in which the probability of an uncertain outcome is well known. The acronym CPT, the initial letters of *cumulative prospect theory*, also ranks high. The rest terms, ranking above number ten, are those words commonly accompanied with CPT.

In Fig. 8 (b), the horizontal bars visualize the terms most highly associated with a certain topic (here, topic 6 as an example). The overlaid bar of a specific term indicates the topic-specific (red shaded) and corpus-wide frequencies. By adjusting the slider at the upper-right of Fig. 8 (b), to increase the lambda ( $\lambda$ ) parameter will decrease the weight of the ratio of the word frequency of a given topic to the word overall frequency in the corpus. That is, important words for the given topic move downward.

The visualized relation (similarity) between topics and the prevalence of each topic are illustrated in Fig. 9. Each circle represented a topic, and the circle area tells the prevalence of the corresponding topic. The Euclidean distance between the centers of the circles tells the similarity (semantic relationship) between the topics. At an aggregate level, neighboring or overlapped circles are clustered to infer associated research themes denoted from  $C_1$  to  $C_8$ . Isolated circles are denoted from  $T_1$  to  $T_8$ .

The most favored topics from the analyzed corpus about CPT were  $C_1$  comprising topic 1, 2 and 5 (in terms of prevalence, from high to low).  $C_1$  is research about risky/stochastic decision, which is the exploration, extensions and arguments pertaining to CPT.  $C_2$ , made by topic 3 and 4, is relevant to the comparison and contrast between CPT and other models.  $C_3$  empirically address the parameters of PWF through experiments, that is, to discover the values of the abovementioned  $\gamma$  and  $\delta$  in function (3). Through the lens of psychology,  $C_4$

is the studies on decision making in the given-and-take context of environment protection.  $C_5$  sheds light on the alignment and/or discrepancy of CPT with respect to experiments in certain conditions and domains.  $C_6$  specializes in investment behavior of financial sector.  $C_7$  is relevant to the integration of CPT and TODIM (TOmada de Decisao Interativa Multicriterio) for certain research purposes. Similar to  $C_7$ ,  $C_8$  is about the handshake between CPT and MCDM (Multi-Criteria Decision Making) method to realize various research attempts.

To generalize the topics of  $C_1$  to  $C_8$ ,  $C_1$ ,  $C_2$  and  $C_3$  primarily examine the theory, CPT, itself. Obviously, the circle areas in  $C_1$ ,  $C_2$  and  $C_3$  are self-explanatory per the criteria of literature selection set previously.  $C_4$  and  $C_6$  address CPT's application to certain research themes.  $C_5$  focuses on the alignment with or disagreement with the arguments of CPT.  $C_7$  and  $C_8$  let CPT accommodate other methods in order to achieve particular research goals.

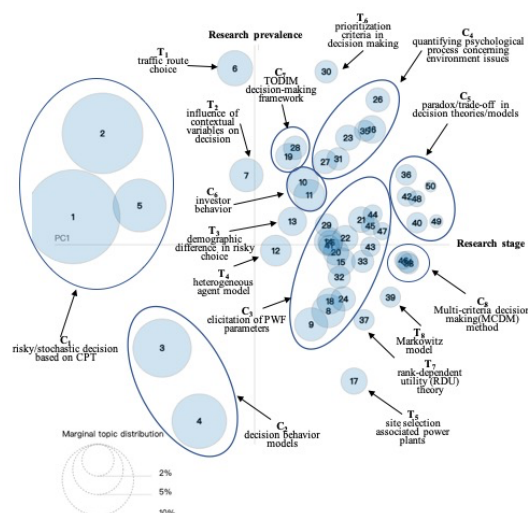


Figure 9: Visualization of the 50 most prevalent topics (rendered by LDAvis) and clustering.

For  $T_1$  and  $T_5$ , one focuses on the traffic route choice and the other concentrate on the power plant site selection. Regarding  $T_2$ ,  $T_3$ ,  $T_4$  and  $T_6$ , they attempt to study CPT from the perspectives of contextual variables, demography, agents, and criteria priority respectively. Finally, as clusters of  $C_7$  and  $C_8$ ,  $T_7$  and  $T_8$  are associated with taking other methods and theories, Rank-Dependent Utility theory and Markowitz model, into consideration.

## 5. Discussion and Conclusion

Research on CPT has made progress on its adoption and applicability over the last 20 years. Nevertheless, there is a lack of review studies that examine the development, trends, patterns and findings. In contributing to this gap in the literature, this research provides literature collection criteria, LDA-enabled topic modeling methods and practice. In this paper, it presents a holistic view of the current state, at the time of this writing, of CPT-related research by presenting the results of a systematic review of 495 articles put forward since 2001. This study provides an alternative way other than the traditional statistical analysis approach to discover research past and prospect trajectories in the field of behavioral economics, specifically those relevant to CPT.

With the implementation of topic modeling characterized by LDA as well as TM, data preprocessing and visualization packages in RStudio, this study reveals the implicit preferences and trends of CPT research. The papers from WOS are investigated in the first

two decades of the twenty-first century. Through this study, 50 topics, portrayed by some 30 words and grouped into 8 clusters (by overlapped and neighboring circles) and 8 isolated circles, are delivered and concluded in a 2D space. The horizontal and vertical axes delineating the 2D space represent popularity and research stage respectively in the corpus. Through this spatial representation and analysis, this study draws a generalized conclusion, in terms of CPT's applications, on route choice in transportation networks as well as decision making on the trade-off associated with issues of energy and environment that could be the coming foci of CPT in exploring decision behavior. In addition, to incorporate other theories and methods into CPT's terrain could be an inviting research approach to explore.

As an attempt to apply LDA to generate topic trends and prospects of CPT associated research, the proposed method bears several limitations. Those limitations arise from the statistical assumptions inhere in LDA. One assumption is that the order of the documents in the collection is not considered. This impedes the analysis of the track and change of a certain underlying theme of the corpus over time. Second, LDA relies on the premise that the words are exchangeable in the document. It is also known as the assumption of the "bag of words." In other words, this assumption does not take how the topics conditionally generate words on the previous word. However, this assumption has minor impact on the quality of this study since we only focus on the course semantic structure of the texts. The third limitation is that the number of topics is fixed and manifest assumed by LDA. It means that the number of topics is given rather than determined by posterior inference of the document collected. Additionally, the hierarchies of topics in question cannot be inferred accordingly.

The results are useful for academic stakeholders to formulate their prospect research lines and concentrations. For stakeholders in academia, research institutes, and governments, our findings also facilitate the decision on funding CPT-based research and applications. Two aspects of direct extension of this study include: On the one hand, the employment of derivative models of LDA that relax LDA assumptions previously mentioned. That is, to relax aforementioned assumptions of LDA could be the following directions for research in CPT. By doing so, future work may produce a more realistic posterior topical structure where a topic could be a sequence of distributions over words in place of a single distribution over words. It will therefore more accurately reflect the topical trace of collections spanning over years. On the other hand, the original paper on CPT by Tversky and Kahneman (1992) has been cited more than 15,000 times, and it suggests that to include more research articles, qualified and filtered by certain research purposes, into the analyzed corpus can be exploited. To combine both aspects with suitable analysis and visualization packages, inferences from and insights into CPT research can be explored and expected.

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***Food and Organizations: The Relationship of Organizational Support and Attitude Towards Office Gastrodiplomacy Among Employees of a Public Organization***

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**Abstract**

Office gastrodiplomacy refers to how food shapes and influences our social relations within organizations, usually in positive ways. Although already a pervasive practice, it is only recently that this concept has received wide attention from industry practitioners and researchers in the behavioral sciences. This emerging topic traces its origins to socio-anthropological studies applied to modern work environments like office settings. To expound scholarship in this field, particularly in the local parlance, this study aims to present novel findings on how organizational support, in aspects involving staff development, resources, and emotional support, affects attitude towards office gastrodiplomacy. A total of 327 respondents participated in a one-shot survey administered from September to December 2019 at the 25 offices of a public organization in the Philippines. Employing a descriptive-relational design, descriptive findings revealed that employees indicated being ‘fairly supported’ by their offices, while a higher proportion of respondents stated that they generally have a ‘favorable attitude’ towards office gastrodiplomacy. Relational statistics, however, generated a ‘not significant relationship’ between the two variables as a whole and across the three components. The researchers argue that it is likely that such a finding is a result of how the respondents only received organizational support in ‘fair’ terms. As such, results may somewhat differ if a ‘high’ favorable attitude to office gastrodiplomacy is complemented with ‘high’ organizational support. It is then proposed that a similar design may be replicated among employees in private organizations who may offer a different perspective, especially as regards aspects of organizational support.

Keywords: Office Gastrodiplomacy, Organizational Support, Public Offices, Philippines

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## INTRODUCTION

Office gastrodiploamacy refers to how food shapes and influences our social relations within organizations, usually in positive ways. While the term ‘gastrodiploamacy’ had already been popularized in international relations (Rockower, 2011), recent developments saw the need to adopt a somewhat similar terminology but applied in different contexts. As defined by the foremost scholar in the field, Dr. Charles Spence, gastrodiploamacy is the ‘use of food to convey a specific message to others’ (Spence, 2016). To delineate their contribution on this emerging topic, Bajar and dela Pena (2021) contextualized gastrodiploamacy as practiced within organizations and particularly the offices, thus the term ‘office gastrodiploamacy.’

Although already a pervasive practice, it is only recently that this concept has received wide attention from industry practitioners and researchers in the behavioral sciences. A few studies in the past explored this phenomenon (e.g. Rozin et al., 1999, Kozinski, 1993; Halvorson & Rudelius, 1977) but findings remained elusive as there was little attention dedicated to this topic especially as a research agenda. It was only by the last two decades that a burgeoning number of researchers explored the phenomenon of office gastrodiploamacy; although literature is not consistent on how it attributes this practice and the absence of a common terminology thereof.

This emerging topic traces its origins to socio-anthropological studies applied to modern work environments like office settings. In behavioral studies in general, current research attributes how food elicits favorable psycho-social behaviors such as social cohesion, familiarity, group acceptance, and social affiliation (Davey, 2016; McCouat, 2014; Williams & Bargh, 2008). Meanwhile, management studies revealed similar findings as applied within organizations. At present, many researches explored how food consumption and food provision in the offices may be attributed to better employee performance. For example, the studies of Kniffin et al. (2015), Taylor (2014), and Balachandra (2013) suggest that work productivity among employees increases when work organizations provide food during lunch, office meetings, or as readily available in the office pantries. Interestingly, researchers also reported that provision of food in the offices significantly: improves supervisor-employee relations and employee-employee relations (McCouat, 2014; Gallo, 2014; Williams & Bargh, 2008); increases work satisfaction (Malcolm, 2016; Taylor, 2014); improves employee retention and abstention (Taylor, 2014); and contributes significantly to employee’s sense of motivation and consequently work engagement (Wooley & Fishbach, 2016; Rot et al., 2015; Schwartz & Porath, 2014; Baldoni, 2013; Halvorson & Rudelius, 1977).

Even though broadly discussed in the current literature, the studies mentioned did not have a coherent description of the phenomenon, and nonetheless of a single terminology. Convinced by this pressing need, Bajar and dela Pena (2021) offered to provide a definition of this practice which they called as ‘office gastrodiploamacy.’ Considering, however, that this concept is in its premature conception, the present paper tries to expound understanding of this phenomenon for further investigation. In this paper, we attempt to identify how organizational support, in aspects involving staff development, resources, and emotional support, affects attitude towards office gastrodiploamacy. Specifically, this study aims to answer the following questions: Is there a significant relationship between organizational support and attitude towards office gastrodiploamacy? Are the components of organizational support, namely staff development, resources, and emotional support, significantly related to their attitude towards office gastrodiploamacy?

## REVIEW OF RELATED LITERATURE

### Organizational Support

Organizational support refers to how the organization takes into account the general well-being of the employees (Eisenberger et al., 1990). In organizational support theory, it supposes that, to meet socio-emotional needs and to determine the organization's readiness to reward increased work effort, employees develop global beliefs concerning the extent to which the organization values their contributions and cares about their well-being (Eisenberger, et al., 1986). Research suggests that much of employees' attitude towards work is determined by how their respective organizations provide their needs. This is supported by the study of Beheshtifar et al (2012) who stated that there is a meaningful relationship between perceived organizational support and positive work attitude.

In a study by Chow (2005), the author revealed that employees seek a balance in their exchange relationship with organizations tending to have attitude and behaviors commensurate with the degree of support the employer gives them as individuals. In another study with nurse managers, Sorum (2007) revealed that organizations who invest in the education of employees return the favor in form of a more motivated and productive workforce. It is for this reason that employees owe a sense of gratitude fostering stronger bonds between the employees and the organization.

Among the components of organizational support are staff development, organizational resources, and emotional support.

### Staff Development

Staff development is at the heart of employee utilization, productivity, commitment, motivation, and growth (Obioma, 2012). They are the policies, programs, and practices that aim at honing employees' skills and enhancing their job-related competencies (Johnsto & Johnston, 1998). According to Tan and Beltran (2009), staff development is a planned experience to help employees perform effectively and to enrich their competence in education, administration, and research. It is the retraining of employees to better their performance in areas of skills, knowledge, and attitude. In studies of Kantseet, et al (2010), Gesme (2010) and Ahmad and Kariaas, cited by Truitt (2012), findings revealed that staff development through education and training affects the work attitude of employees. In contrast, Teubes (2002) revealed that there is no significant relationship between staff development and work attitude of employees.

Obioma (2012) reported that the lack of staff training and development programs lead to poor or negative attitudes towards work. Corollary to this, he noted that it will eventually result in low performance and productivity. Staff development therefore impacts how employees view their work and how they perceive the support from their organization. Diaz (2006) noted that whether employees attend or not to seminars and training, their degree of openness and harmony towards their superiors remains the same. This is supported by the findings of Teubes (2002) who argued that there is no empirical evidence that proved training to be impactful in changing attitude managers in the IT companies and tends to think otherwise that they are just a waste of time.

## Resources

Resources, and the sufficient provision thereof, are fundamental in every organization. They are prerequisites to an efficient and effective work. This is supported by the contentions of Mtsie (2011) who found out that shortage of human and material resources were related to negative attitudes among employees. Moreover, the same finding was revealed in the study of Leblebici (2012) where Turkish employees indicated an adverse attitude towards work as affected by the quality of their workplace environment such as lighting, personal storage, general storage, work area such as their desk, and circulation space. According to Rodley (2012), furniture impacts employees' attitude arguing that they must be comfortable and effectively working. He further contends that employees who are provided with appropriate workspace and proper, updated, and well-working equipment needed for a particular job position will lead to a more likely positive attitude towards work than those who are dealing with frustrating and broken ones.

## Emotional Support

Selcuk and Ong (2003) points out that emotional support is provided when organizations acknowledge employees' efforts and contributions, values and cares about them, ensure an honest environment, and that which encourages volunteering and consistency in organizational policies, and activities. According to Bryan (2009), employees feel more positive about their work when their superiors listen to their ideas and concerns, give them regular feedback about their performance, and consistently show respect to them. It is supported by the contentions of Leblebici (2012) who said that being treated fairly is important for all employees. Fair treatment motivates employees to do and develop their tasks with full interests. Likewise, the justice theory of Adams (1965) posited that fair and unfair treatment in the organization has a significant impact on one's attitude.

## Attitude towards office gastrodiplomacy

In the Master's thesis of Bajar (2020), the author developed an instrument that assessed attitude towards office gastrodiplomacy which the author defined as 'the positive or negative feeling associated with office gastrodiplomacy.' Using intensive review of literature, the author developed a 21-item questionnaire to be rated by the respondents using a dichotomous scale consisting of two responses (Yes/No). In 2021, the author published a substantial portion of the work which discussed the relationship between socio-demographic profile and attitude towards office gastrodiplomacy. Gathering data from 327 respondents from different offices of a public organization, the study revealed that attitude towards office gastrodiplomacy is significantly related with age and length of service. This finding denotes that younger employees tend to have significantly higher positive attitudes compared to older employees. The same explanation can be said between the relatively newer employees than the older ones. The authors proposed that this phenomenon may be attributed to higher appetite levels of the young. Moreover, they also suggested that another possible reason is how younger individuals tend to see food and eating rather as a social activity than as a nutritional and biological process (Bajar & dela Pena, 2021).

## METHODS

This study is a descriptive-relational study that employed a one-shot survey design. A non-experimental paper, this research aimed to determine the relationship between organizational



support and attitude towards office gastrodiplomacy. A total of 327 respondents participated, administered from September to December 2019 at the 25 offices of a public organization in the Philippines. Prior ethical review checks and approval were obtained to proceed with the data collection. The questionnaire consists of two parts: the first part consisted of 15-item questionnaire on organizational support adopted from Matutina (2013); and the second part consisted of 21-item researcher-made questionnaire measuring attitude towards office gastrodiplomacy. The questionnaire also included a consent form where respondents indicate their voluntary participation in the study. They were also informed that they have the right to refuse to answer the questionnaire if they were not willing to participate in the study. Data were processed and analyzed using the Statistical Package for Social Sciences (SPSS) version 23. Descriptive statistics such as mean and frequency distribution were calculated for all variables. For inferential statistics, Chi-Square test and Cramer's V were used. The findings of this paper are part of a separate substantial portion of the master's thesis of the main author.

The socio-demographic profile of the respondents is presented in Table 1. On average, the respondents were 42.3 years old. Out of 327 respondents, 29.7% aged 24-35 years old, 31.8% aged 36-45 years old, and 38.5% aged 46-65 years old. Female respondents (61.8%) outnumbered male respondents (38.2%). In terms of educational attainment, at least one in ten is undergraduate (13.5%), at least seven in ten are college graduates (72.5%), while there are at least one in ten in the postgraduate level (14.1%). The data in Table 2 further revealed that respondents had an average of 11.2 years of experience. The distribution further showed that more than half (63.6%) are short tenured employees with 1-10 years of experience, almost one-third (27.8%) are middle tenured employees with 11-25 years of experience, and barely one-tenth (8.6%) are long tenured employees with 26-40 years of experience. Meanwhile, data of the monthly income showed respondents earned an average of Php 22,311.3. At least half of them are low income earning within the bracket Php 8,000 – Php 16,000. Nearly one third (28.1%) are within the middle income earning within the bracket Php 16,001 – Php 30,000. The remaining one-fourth (21.7%) are high income employees earning above Php 30,001. Finally, as to the nature of job position, professional employees constitute 57.2% which is closely followed by sub-professional employees consisting 42.8% of the total respondents.

**Table 1. Socio-demographic of the respondents**

<b>A. Socio-demographic Profile of Respondents</b>		<b>F</b>	<b>%</b>
<b>Age</b>			
	24 – 35 years old	97	29.7
	36 – 45 years old	104	31.8
	45 – 60 years old	126	38.5
	<b>Total</b>	<b>327</b>	<b>100.0</b>
	<b>Mean Age = 42.3 years old</b>		
<b>Sex</b>			
	Male	125	38.2
	Female	202	61.8
	<b>Total</b>	<b>327</b>	<b>100.0</b>
<b>Educational Attainment</b>			
	Undergraduate	44	13.5
	College Graduate	237	72.5
	Postgraduate	46	14.1
	<b>Total</b>	<b>327</b>	<b>100.0</b>
<b>Length of Service</b>			
	1 – 10 years	208	63.6
	11 – 25 years	91	27.8
	26 – 40 years	28	8.6
	<b>Total</b>	<b>327</b>	<b>100.0</b>
	<b>Mean Length of Service = 11.2 years</b>		
<b>Monthly Income</b>			
	P8,000 – 16,000	164	50.2
	16,001 – 30,000	92	28.1
	above 30,001	71	21.7
	<b>Total</b>	<b>327</b>	<b>100.0</b>
	<b>Mean Monthly Income = Php 22,311.3</b>		
<b>Nature of Job Position</b>			
	Sub-professional	140	42.8
	Professional	187	57.2
	<b>Total</b>	<b>327</b>	<b>100.0</b>

## FINDINGS

### Relationship between Organizational Support in terms of Staff Development, Resources, and Emotional Support and the Attitude towards Office Gastrodiplomacy

Table 2 presents the relationship of the sub-categories of organizational support in terms of staff development, resources, and emotional support and attitude towards office gastrodiplomacy.

**Staff development.** Higher proportion (84.6%) of those who received high support in terms of staff development thinks positively about office gastrodiplomacy than those who were poorly (80.8%) and fairly (79.8%) supported. Inversely, those who received fair (20.2%) support earned the highest percentage of respondents having a negative attitude unlike those who were poorly and highly supported (19.2% and 15.4%, respectively). The Cramer's V analysis generated a value of 0.053 with p value of 0.629 which is not significant at 0.05 confidence level. This implies that staff development bears no significant influence on attitude towards office gastrodiplomacy in general.

The finding above coincides with the study of Teubes (2002) who argued that there is no significant relationship between staff development and employee attitude. Perhaps a possible explanation relates with how current staff development programs in Philippine public organizations are now seen as a form of a 'compliance' measure, both in terms of the office administration and the employees. Since there are legislations that require government offices to implement staff development programs, public organizations abide by them, otherwise they will be called out by certain audit offices like the Civil Service Commission (CSC). On the other hand, public offices may require their employees to attend to these programs even though employees do not necessarily desire to participate. As such, office gastrodiplomacy may offer some relief but it is not enough to significantly say that it is related with staff development.

**Resources.** Of about within the same ranges, those who indicated that they were fairly supported (83.2%) had the highest proportion of respondents indicating favorable attitude towards office gastrodiplomacy as compared to those who received poor (81.6%) and high (80.2%) support. In contrast, much percentage (19.8%) of unfavorable attitudes come from those who think that they are highly supported than those who were poorly (18.4%) and fairly (16.8%) supported. Result of the Cramer's V analysis resulted in a value of 0.031 with p value of 0.853 which is not significant at 0.05 confidence level. This implies that resources have no significant influence whether one feels positive nor otherwise towards office gastrodiplomacy.

The finding mentioned is not consistent with the study of Leblebici (2012) who argued that there is a positive correlation between quality of workplace resources and employee attitude. In the context of public offices in the Philippines, there is no formal convention yet for the organization to provide employees with food. Hence, respondents in this study may not consider office gastrodiplomacy as part of their office resource. Considering the dynamism of Philippine politics which transcends to the different offices in the government, Filipino government employees may see office gastrodiplomacy as a favor extended to them by their supervisors. Although the money may be outsourced from the office budget, employees may think that it is because of the 'kindness' of their supervisors that they are being invited to eat food together whether or not on special occasions.

**Emotional support.** With the light proportional difference (0.1%), respondents who received fair support (82.1%) generally have a favorable attitude closely followed by those who received high emotional support (82.0%) and poor emotional support (80.8%). Meanwhile, those who received poor emotional support earned the highest percentage (19.2%) of respondents saying they have a negative or unfavorable attitude unlike those who were highly and fairly supported (18.0% and 17.9%, respectively).

The statistical analysis for the test of relationship revealed a Cramer's V value of 0.016 with p value of 0.961 which is not significant at 0.05 confidence level. This implies that emotional support is not a factor that affects employees' attitude towards office gastrodiplomacy.

The abovementioned finding is not consistent with several studies who argued that employees who were provided high emotional support feel more positive in their attitude (McCouat, 2014; Gallo, 2014; Williams & Bargh, 2008). A possible explanation can be attributed to how Filipinos generally perceive emotional support as an encompassing social value, to be not easily swayed just by how we share food with each other. Although food may offer a temporary relief on our emotions, it does not automatically translate to how we see our workplace to be necessarily concerned with our emotions. As eating is a daily and routine activity to human beings, it somehow diminishes the value of food-sharing as a means to reinforce emotional support in workplaces. Employees may not necessarily feel that they are emotionally supported by their organization when they are given food. On the other hand, they may only see it as an ordinary organizational activity absent with any special meaning, unless otherwise explicitly stated say for example during someone's birthday and the like.

**Table 2. Relationship between Organizational Support in terms of Staff Development, Resources, and Emotional Support and the Attitude towards Office Gastrodiplomacy**

	Attitude towards Office Gastrodiplomacy					
	Positive Attitude		Negative Attitude		Total	
	f	%	F	%	f	%
<b>Staff Development</b>						
Highly Supported	88	84.6	16	15.4	104	100.0
Fairly Supported	95	79.8	24	20.2	119	100.0
Poorly Supported	84	80.8	20	19.2	104	100.0
<b>Total</b>	<b>267</b>	<b>81.7</b>	<b>60</b>	<b>18.3</b>	<b>327</b>	<b>100.0</b>
Cramer's V: 0.053 <i>No relationship</i> p=0.629 <i>Not significant</i>						
<b>Resources</b>						
Highly Supported	85	80.2	21	19.8	106	100.0
Fairly Supported	89	83.2	18	16.8	107	100.0
Poorly Supported	93	81.6	21	18.4	114	100.0
<b>Total</b>	<b>267</b>	<b>81.7</b>	<b>60</b>	<b>18.3</b>	<b>327</b>	<b>100.0</b>
Cramer's V: 0.031 <i>No relationship</i> p=0.853 <i>Not significant</i>						
<b>Emotional Support</b>						
Highly Supported	105	82.0	23	18.0	128	100.0
Fairly Supported	78	82.1	17	17.9	95	100.0
Poorly Supported	84	80.8	20	19.2	128	100.0
<b>Total</b>	<b>267</b>	<b>81.7</b>	<b>60</b>	<b>18.3</b>	<b>327</b>	<b>100.0</b>
Cramer's V: 0.016 <i>No relationship</i> p=0.961 <i>Not significant</i>						

**Overall organizational support.** With only a slight difference, a greater proportion (82.5%) of those who were poorly to fairly supported have a favorable attitude to office gastrodiplomacy unlike those who were highly supported (81.0%) (Table 3). Inversely, a higher proportion (19.0%) of those who were highly supported have a more unfavorable attitude compared to those who were poorly to fairly supported (17.5%). The result of the Cramer's V test for relationship between two variables yielded a value of -0.20 with p value of 0.721 which is not significant at 0.05 level. This indicated that the extent of organizational support has no significant influence on overall attitude towards office gastrodiplomacy.

The hypothesis therefore that there is no relationship between age and the affect component of attitude towards office gastrodiplomacy cannot be rejected. This finding is not consistent with the studies of Beheshtifar, et al., (2012) and Chow (2005) who established a correlation between extent of organizational support and employee attitudes. Several explanations elaborate in the discussion of the findings in the different subcomponents of organizational support offer a convincing explanation why current findings do not support the relationship between the variables. A key explanation, perhaps, relates to the nature of office organizations in the Philippines and how office politics work in practice. Most prominent in our explanations point out how Filipino values and conventions affect our attitude to food, in general. Although office gastrodiplomacy is a prevalent practice in whichever setting in the country, it is important to note we still take our investigation back to how our 'culture' affects our attitudes.

**Table 3. Relationship of organizational support and attitude towards office gastrodiplomacy**

	Attitude towards Office Gastrodiplomacy					
	Positive Attitude		Negative Attitude		Total	
	f	%	f	%	f	%
<b>Organizational Support</b>						
Highly Supported	149	81.0	35	19.0	184	100.0
Fairly Supported/ Poorly Supported	118	82.5	25	17.5	143	100.0
<b>Total</b>	<b>267</b>	<b>81.7</b>	<b>60</b>	<b>18.3</b>	<b>327</b>	<b>100.0</b>
Cramer's V: -0.20 <i>No relationship</i> p=0.721 <i>Not significant</i>						

## CONCLUSIONS

In this paper, we provide a context on how office gastrodiplomacy may be quantitatively studied within organizations. We aim to contribute in the current literature and expound our understanding of this phenomenon which is broadly studied by scholars from other parts of the world, but to little attention in the local parlance. As we tried to further our scholarship on office gastrodiplomacy, we aimed to investigate whether this phenomenon can be related to other relevant variables in behavioral and management research like organizational support. One significant recommendation that we highly suggest is for future studies to test the same findings on business and for-profit organizations. Since our study is limited only to participants in the public offices, we safely assume that findings may not necessarily be identical to their counterparts in private offices. In addition, most of the literature by far observed those in the latter. It is interesting to conduct a comparison of the findings and from there determine the underlying reasons why findings might possibly be not consistent. In doing so, we may generate helpful insights where we better improve relationships within organizations and have a healthy working environment. As part of our final remarks, we encourage our readers to realize the importance of office gastrodiplomacy, encompassing wherever settings. The main goal of office gastrodiplomacy is to shape the relations within organizations towards a positive light. Considering that food is part of our daily survival, we may realize the importance of food not only as a biological and nutritional activity but also as a way for us to better not only our bodily but also social functioning. We may be able to realize that, at the end of the day, working in a healthy environment makes employees drive to excel more and be inspired to come to work. When employees have a desirable workplace, they partake in the vision of the organization and become actively engaged in pursuing its goals, and towards becoming committed partners of the organization.

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***The Impact of Mindfulness Traits of Elementary School Students on Resilience in COVID-19 Era***

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**Abstract**

In an era of severe epidemic, the trait's of mindfulness is vital to the performance of students' resilience. The general social depression of students under the epidemic can enhance the inherent protective factors of their resilience through the display of mindfulness characteristics, which in turn affects their daily life, learning performance and the development of interpersonal relationships. Therefore, this study conducted a questionnaire survey of Mindful Awareness Attention Scale (MAAS) and Brief Resilience Scale (BRS) for 96 students aged 10-12 years old in Taiwan. At the same time, they used individual online and face-to-face interviews to understand their actual performance. The questionnaire analysis found the correlation between mindfulness and resilience. Up to  $p=0.00$ ;  $r=0.494$ ; It is learned from students' self-reports that anxiety during the outbreak can be adjusted by the performance of the trait's of mindfulness, so that learning and life can be maintained at a stable level. The results of the study found that: (1) Students' mindfulness traits are positively correlated with resilience; (2) Students can show positive and positive performance in online learning or in practice; (3) Students with higher trait's of mindfulness. Under the changing lifestyle of the epidemic, they can be highly adaptable, and be able to accept and abide by the relevant standards of epidemic prevention, so that the physical and mental condition and academic performance can be balanced. The Researchers put forward relevant suggestions based on the conclusions of the research, and put forward practical results for future researchers as reference.

Keywords: COVID-19 Era, Elementary Schools Student, Trait of Mindfulness, Resilience

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## Introduction

### Life and learning development in the epidemic Era

The novel coronavirus pneumonia (COVID-19) has been sweeping the world at an unprecedented rate in 2020 with the expansion of global epidemic. The strong development of the epidemic has changed daily lives. The various preventive measure have caused the estrangement of hitherto unknown people, and there have been many new topics in daily life, education and learning. Epidemic prevention measures have continuously changed the models of national economy, international exchanges and social order, and national epidemic policies also affect the individual mind and education model (Ding Shuguan, 2021). "Class suspension without school suspension" makes various forms of online teaching swarm out, so that teachers, students and parents can not quickly adapt to new teaching methods in the process of online learning, resulting in anxiety and stress of all parties. These major changes in life have a psychological impact on both children and adults. Personal and interpersonal relationship variables, such as personality, development level, cognitive and emotional ability, coping strategies and resilience, will affect children's (McDermott, berry, & Cobham, 2012) and parents' response to difficulties and family support system (Madrid, grant, Reilly, & redlener, 2006). In adversity, individuals can overcome difficulties, successfully deal with the negative effects of risk and trauma experience, and further develop adversity. Growth is resilience (Fergus & Zimmerman, 2005). In order to adapt to environmental changes, students also need to maintain a high level of self-control and self-management (Chen Weihong, 2020). Students with mindfulness have the ability of self and emotional adjustment in the environmental anxiety situation under the epidemic, so as to improve their sense of anxiety and stress state (Weis, ray & Cohen, 2021). Students with better emotional adjustment ability can develop high resilience and stabilize their individual physical and mental balance (yuan, 2021). In online courses and epidemic prevention environment, students need to effectively adapt to this change in a short time, so that they can stabilize their body and mind in the era of epidemic, and further achieve a balance between learning and life.

### Trait's of mindfulness

The word "mindfulness" comes from Eastern Buddhism and has become a new topic after de religiosity. It attaches importance to the current state of individual awareness, faces life with an open attitude and emphasizes the sense of existence all the time. In mindfulness activities, meditation and meditation activities are the most preliminary exercises, which can significantly help individuals in attention, observation and action (Kabat Zinn, 2006). However, in the turbulent era of the epidemic, students must have the ability to adjust their emotions, stimulate self exploration and strengthen self-awareness; therefore, to achieve a stable living state of individual happiness, adaptability and inner balance. Mindfulness trait is the characteristic expression of an individual (Creswell, 2017). Studies have pointed out that mindfulness traits are manifested in personal attention and self-awareness in the present sense (Brown & Ryan, 2003), curiosity in self-regulation, open acceptance and concentration (Lau, bishop, Segal, Buis, Anderson, Carlson, Shapiro & Carmody, 2006). Observation, conscious action, unconditional acceptance, description, non evaluation (Baer, Smith, lykins, button, krietmeyer, Sauer, Walsh, Duggan, Mark & Williams, 2008). The research of Greco, Baer and Smith (2011) pointed out that due to the different maturity of physical growth, there is a large gap in cognition and expression. Therefore, in the cultivation of mindfulness traits, the open attitude of awareness of the present, conscious action and unconditional acceptance is

the main goal. In the process of meditation, through the natural breathing state, lead the consciousness to pay attention to the individual's present, so as to feel the existence and action. With the individual paying attention to his own performance, adjust and express the physical muscle tension and psychological negative emotion. However, studies have shown that when performing meditation activities, brain nerve regions will keep changing all the time, and make individuals face the events or states in a calm state with a rational state. Therefore, the activity of meditation helps to improve the performance state of individuals in mindfulness traits. (Behan, 2020) During the cultivation of mindfulness traits, it will affect the hippocampal gyrus and amygdala in the brain, improve learning performance and regulate emotional performance. Therefore, it will enable the balanced development of the left and right brain, reduce tension, fear and depression in negative emotions, and then strengthen the immune system, so as to achieve positive development of the body and mind (Kabat Zinn, 2006). Likewise, people who have mindfulness traits have the ability to develop in cognitive, social, emotional and health aspects. There are high development opportunities in emotion and health, so it also has a high performance state in adapting to difficulties and problem solving (Creswell, 2017). Under the high impact of the environment, students' adjustment and response to pressure and learning enthusiasm will also have high expressiveness (bazzano, Anderson, Hylton, & gustat, 2018; malboeuf Hurtubise, l é Ger goodes, mageau, joussemet, Herba, chadi, lefran ç OIS, Camden, Bussi è res, Taylor, É thier & Gagnon, 2021). Moreover, people with mindfulness traits have more resilience, and they reduce meditation and habitual worry (Shapiro, brown, & Biegel, 2007; verplanken & Fisher, 2014). Therefore, in a severe environment, if students have mindfulness, it will help to reduce worry and depression, promote mental health and show better resilience.

## Resilience

Resilience is defined as the process and results of an individual's ability to successfully adapt to difficult or challenging life experiences through psychological and behavioral flexibility and adjustments to internal and external needs (Reivich & Shatte, 2002; Ong, Bergeman, Bisconti, & Wallace, 2006). However, under the epidemic environment, students need to adapt to the environment and difficult situations more and more. And resilience becomes a key ability.

Since the 1980s, resilience research has focused on identifying the mechanism of action of risk factors and protective factors. Resilience is seen as a process of strengthening protective factors and adjusting to adversity (Zolkoski & Bullock, 2012). Later studies have identified risk factors and regarded resilience as a probability value that can estimate various risk levels in growth and may change with time and place (Li Yuching, 2018). Resilience is regarded as a dynamic structure in the interaction between individuals and the environment, which can still show the functional or behavioral results towards positive goals and good adaptation even in difficulties ( Wang Shufen, 2007 ; Masten, Best, & Garnezy, 1990). The view of resilience has changed from post-traumatic growth mode to active adaptation mode, which is divided into (1) harm reduction mode (2) protection mode (3) promotion mode (Davydov, Stewart, Ritchie & Chaudieu, 2010). Individuals have some healthy psychological traits or the ability to recover quickly (Kaplan, 2005). In the international resilience project hosted by Grotberg (1996), scholar summarized resilience into three characteristics: personal internal strength, the external support and resources, and social interpersonal skills. Studies have shown that children can show strong resilience, including high self-esteem and self-affirmation, their own abilities, the ability to live on their own, the ability to be

independent, the ability to think, the ability to solve problems, maintain correct views, and interact with other people (Maurice, Joanna, Annam, & Shelagh, 2002).

Students with mindfulness traits have good expressive and regulatory abilities in learning achievement, concentration, skill performance, social skills, emotional regulation, and self-efficacy performance, thereby promoting the development of resilience. Therefore, when they encounter trauma, they can use positive values and accept them calmly to help them restart a good life state (Micklejohn, Phillips, Freedman, Griffin, Biegel, Roach, Frank, Burke, Pinger, Soloway, Isberg, Sibingga, Grossman & Daltzman, 2012; Thompson, Arnkoff, Glass, 2011).

In the plight of the epidemic, primary school students' daily life patterns and teacher teaching methods have changed, and they need to adapt to the great changes in daily life. If students have better resilience and mindfulness, they can better adapt to psychology and the environment in the face of life problems or learning difficulties. Also, they can use flexible characteristics to develop coping strategies to overcome difficulties.

### **Effect of mindfulness on resilience**

Under the effect of the epidemic, because students lose the resources of school institutions, the learning attitude, self-control, or the ability to learn independently. They must have distance learning may not be able to enter the situation in a short time, resulting in a short time of anxiety and panic (Behan, 2020). After mindfulness training, students can stabilize their emotions and enhance their cognitive control ability to reduce anxiety (Schonert - Reichl, 2015). Through the implementation of the protection mechanism, students can observe their negative emotions and attitudes in the current state, and then adjust their physical and mental state (Behan, 2020). So that students with mindfulness have better self-control and positive learning behavior than ordinary students. Therefore, mindfulness is an indispensable ability to stabilize students' psychological state and attitude in the learning of distance teaching.

Mindfulness training is a method to cultivate resilience. Individuals who improve mindfulness characteristics due to mindfulness training can better deal with difficult situations and respond in an appropriate way (Bajaj & Pande, 2016). Studies have confirmed that people with mindfulness can improve life satisfaction and play an important role under the effect of resilience. Therefore, this study explores whether the difficulties encountered in the epidemic era have an impact on the lives of students with mindfulness through the performance of resilience.

### **Object and Process**

#### **Participants**

This study takes 20 primary school students aged 10-12 who have participated in mindfulness meditation training for more than four years as the research object.

#### **Research process**

In this study, Maas was used to test whether the students who participated in mindfulness meditation training have the tendency of mindfulness, and to test their resilience in the epidemic situation. And analyze whether students with mindfulness have better resilience. Then the interview outline was designed according to the theoretical connotation of literature

analysis. Since the subjects of the study are minors under the age of 18, the research ethics consent is given to the legal representative and students for consent and signature. The research is mainly based on individual interviews, supplemented by audio and video tools for data collection. After data collection, it is analyzed and summarized, summarized and put forward suggestions.

## **Research method and tools**

### **Research method**

In order to explore the impact of students' mindfulness traits on their resilience, we take students who have participated in mindfulness meditation activities as the research object, measure them with Mindful Attention Awareness Scale and Brief Resilience Scale questionnaires, supplemented by individual interviews as supporting data. This study conducted questionnaire survey and interview activities during the summer vacation. Online forms and video conferences were used as the source of research data.

### **Research tools**

In this study, a questionnaire survey and semi-structured interview were used as tools for research, analysis, and processing. Firstly, the scale was translated into Chinese, and then the appropriate words easy to understand by children were expressed according to the measurement object. The scale was tested by experts. Through the suggestions of three experts and scholars, the content of the questionnaire was obtained. To achieve test consistency, it was changed to reverse questions.

Mindful Attention Awareness Scale (MAAS) :

This scale is the research of Brown & Ryan (2003). There are 15 questions in total, all of which are reverse questions. It is a 6-point Likert scale, in which 1 point means "almost none" and 6 points means "almost always". Cronbach's  $\alpha$  the value is .81. This test table is a unidimensional scale. The test results are used to measure the performance of individuals on their own state of awareness (Chang Jenho , Lin Yicheng , & Huang Chinlan , 2011).

Brief Resilience Scale (BRS) :

This scale is the research of Smith, Dalen, Wiggins, Tooley, Christopher & Bernard (2008). It has 6 questions. It is a 5-point Likert scale, Cronbach's  $\alpha$  Between .80 and .91, this test table is a unidimensional scale. The test results are used to measure the performance of individuals in their own resilience state (Hsin Yuzong , 2020).

### **Semi-structured interview**

The semi-structured interview method is a collection method between structured and unstructured interviews. Before the interview, researchers set the interview outline through the understanding of the topic, research problems, and research objectives, which can be used as the guiding direction and auxiliary tool during the interview. During the interview process, the interview questions can be flexibly adjusted according to the actual situation (Pan Shuman , 2003). Due to the different views and life experiences of respondents, their responses will be different. Therefore, this study uses the content of the interview outline for semi-structured individual interviews. The interview time is set at about 15 to 20 minutes, and a complete verbatim collection is conducted by means of audio and video recording.

## **Result**

Based on the results of the interviews, this study found that 10-12-year-old students had a good ability to adjust their daily life, physical and mental state, and learning performance under the epidemic situation. The results of the quantitative data showed that neither boys and girls in this age group had Differential performance results.

### **Students make appropriate changes to adapt to their daily life under the epidemic**

Students can first observe the trend changes brought about by the epidemic and accept the government's response policies with an open and positive attitude in life. For example, they must wear masks all the time when going out. Even if they feel uncomfortable, they can quickly adapt and Make it a part of life.

"mm... First, look at the current situation of the epidemic, and then see if there is anything that needs to be changed, such as wearing a mask to go out! I will bring it all."

"Well... when the epidemic is happening now... everyone will be more nervous, then I will first recall the easier life in the past, and then focus on the important things, and I will be more willing to accept this life. "

"When you are running, you will find it difficult to breathe, and then sweating will stick the mask and it will be uncomfortable, but I will accept this situation, so I bring two more masks to class later, and I will change it after class to make myself comfortable. "

### **Adjusting the state of mind and body in the tense feeling of changes in the epidemic situation**

When the epidemic heats up, the tension and discomfort can be faced and accepted with a calm attitude, focusing on the current attitude to life, balancing the physical and mental state and further adjusting the emotional changes. They can also deal with the tension and pressure brought about by the way of class with a positive self-study attitude, so as to resolve the pressure and frustration brought about by learning achievements.

"I was a little uncomfortable at first, because I couldn't see other students and teachers, and I felt sad because I didn't have a playmate... During class, I would put the matter of playing with my classmates to the back of my head, and take the class seriously first, Then tell the teacher to give them some time to chat with friends after class."

"It is to focus on completing the tasks that you should complete, and then imagine the learning of the epidemic as real life, and then continue to concentrate on class."

### **Positive learning performance in physical and online courses**

When the epidemic situation is more severe, when the online courses are converted, students can quickly adapt to and adjust their learning attitudes and seek resources for the changes

brought by teachers' teaching methods and learning environment, and successfully solve the impact of the predicament.

"When the class is online, concentrate on listening, and then after class, turn over the textbook to see if there is anything you can't do, and if you can't, just ask the teacher or classmates directly, and I'm very willing to accept the current life even in the midst of the epidemic."

"Well... first see how the teacher wants to teach, or what method to use, you have to get used to it and then adjust your learning style. At the beginning of the class, the mood will be more nervous, but I will relax myself first, and then try to adjust to the Learn it with the way the teacher."

### **Students trait's of mindfulness are positively correlated with their recovery**

Pearson product-difference correlation: This study calculates the Pearson's product-difference correlation between all variables, and has an overall understanding of the strength and direction of the association between the two variables. The analysis revealed that the association between mindfulness and resilience ( $p=0.000<0.05$ ,  $r=0.494$ ) was a significant moderate positive correlation.

### **There is no significant difference in age and gender**

There was no significant difference in mindfulness traits between age groups ( $p=.405$ ) and gender ( $p=.362$ ). It can be seen that whether students aged 10 to 12 years old have high or low levels of mindfulness traits, it is not determined by age. segment or gender. There was no significant difference in resilience between age groups ( $p=.365$ ) and gender ( $p=.864$ ). It can be seen that the level of resilience performance of 10-12-year-old students does not vary by age group. or gender effects.

At last, among the 10-12-year-old male and female students with high mindfulness, students have clear and good results in terms of life performance, learning attitude, and the ability to adjust their physical and mental balance in the face of the epidemic. The mindfulness trait is important for students to be resilient.

### **Discussion**

1: Students can observe the inconvenience and trouble caused by the epidemic situation, and make changes in a good and positive way at an appropriate time. People with mindfulness traits have more resilience, and they reduce depression thinking and habitual worry (Shapiro, brown, & Biegel, 2007; verplanken & Fisher, 2014). People with mindfulness have high development opportunities in cognition, social, emotion and health, so they also have high performance in adapting to difficulties and problem solving (Creswell, 2017). Through the literature and analysis, it can be seen that students with high mindfulness characteristics have better performance in adapting to the change of epidemic situation and adaptation. When the value of students' mindfulness trait is low, it will be more difficult to observe the content that needs to be changed.

2: Students were able to balance their psychological and physical changes due to the many inconveniences brought about by the epidemic era. Students with better emotional adjustment

skills are able to develop a high degree of resilience and stabilize their physical and mental balance (Yuan, 2021). For changes in teaching, under the high impact of the environment, students will have a higher performance in adapting and coping with pressure, and in their enthusiasm for learning (Bazzano, Anderson, Hylton, & Gustat, 2018; Malboeuf-Hurtubise, Léger - Goodes, Mageau, Joussemet, Herba, Chadi, Lefrançois, Camden, Bussi res, Taylor,  thier & Gagnon, 2021). The results of the analysis showed that students were able to use active self-study learning methods to overcome difficulties, find a variety of solutions, and focus on their studies and life. According to the above literature, it is also pointed out that students with mindfulness traits have the ability to adjust themselves and emotions in the context of environmental anxiety under the epidemic, thereby improving anxiety and stress (Weis, Ray & Cohen, 2021). Students with higher mindfulness traits can still find ways and focus on learning during the pandemic. When students' mindfulness trait values are low, they are more difficult to overcome when they encounter bottlenecks in learning and life.

3: The analysis shows that the mindfulness characteristics of students with mindfulness meditation training experience are positively related to their resilience. According to the data on the impact of students' mindfulness traits on resilience, it can be known that mindfulness traits have a positive impact on their resilience (Bajaj & Pande, 2016).

4: According to the research, differences in age group and age will not affect the problems of the above students, that is to say, regardless of the student's grade or gender, the problems of handling, observing and adapting to the epidemic are not affected. It is suggested that future researchers can explore primary school students in different regions to explore the possibility of cultural differences or differences in social and economic backgrounds and living environments.



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***Investigating the Influence of Movie Genre on Mood  
Using Nonparametric Methods***

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**Abstract**

There has been several studies related to investigating the relation of mood and personality with entertainment domain for various reasons. Recent studies with the help of huge number of data made it possible to have a better understanding of mood regulation and how it is influenced by the entertainment industry. Although the recent studies were promising, there exist many vague and unknown aspects to shed light on. In the present study, nonparametric methods were used to investigate the influence of watching specific movie genres (horror, comedy, and romance) on mood from a filled questionnaire of 30 participants. In addition, the relation of the personality types of these participants with movie genre preferences was analyzed using a nonparametric method. The results revealed that: 1) There is a significant evidence that watching a particular movie can influences some mood components; 2) There was enough evidence to conclude that Conscientiousness and Openness personality traits can be predicted by Romance genre movies with certain confidence levels, but there was not enough evidence to find any particular relation between other personality traits with any movie genres; 3) There are evidences that watching movies can be used as a part of psychotherapy technique to treat mood disorders, and not all movie genres are suitable for people who are suffering from mood disorders.

**Keywords:** Mood, Nonparametric Methods, Personality, Movie Genre

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## Introduction

It sounds true that personality traits and mood states can highly effect choosing the movies someone shows interest to watch (Strizhakova & Krcmar, 2007), but discovering the exact effects of watching specific genre of movies on our mood and emotion is still under study. In several studies, movies were used as a stimulus to evaluate the effects on mood and emotion since few decades ago (Payne et al., 1998). To investigate it in more details, leisure researchers were testing it on various movie genres. As examples: 1) Romance genre of movies was used to check whether it can have effects on warming up the physical coldness of individuals (Hong & Yacheng, 2012); 2) The effects of horror movies on mood were investigated by Sauchelli in details (Sauchelli, 2014); 3) Individuals were exposed to comedy clips to investigate whether it will result into their higher positive mood states or not (Lepori, 2015). Although the researchers use movies as a stimulus to test the effects on mood for different reasons, it is clear that more studies are needed to distinguish between the effect of each one of these movie genres on mood more vividly.

One of the main methods to quantitatively investigate mood has been dimensional structure models. Most scientists agree that there are two independent dimensions which can describe mood. They were named Pleasure/Valence (P) and Arousal (A) (Mehrabian & Russell, 1974). It is also possible to divide these dimensions to sub-dimensions. For example, Positive Activation and Negative Activation can be considered as sub-dimensions of Valence (Watson & Tellegen, 1985), and Arousal dimension has been suggested to be divided into four sub-dimensions (Thayer, 1990). There were studies which have shown that there are evidence of more independent dimensions of mood. For example, Mehrabian proposed Pleasure, Arousal, and Dominance (PAD) as three almost independent dimensions of mood (Mehrabian, 1996). Finally, these types of dimensional structure models can be used to identify novel treatments for affective disorders (Mehraei, 2018; Mehraei, 2019; Mehraei, 2020).

In this study, two independent dimensions P and A were used to measure the core affect (Russell, 2003) of the participants before and after watching 3 genres of movies (horror, comedy, and romance). In addition, their personality was measured using OCEAN big five personality traits. Nonparametric methods were used to find: 1) whether the personality traits have a influence on movie preferences; 2) whether there is a significant influence of watching a specific movie (based on genre) on the mood states of individuals.

## Materials and Methods

### Sampling and Data Collection

The sample in this study included 30 volunteers, who were from various countries with different backgrounds. About 53% of the sample were female, and the age range was from 21 to 40 years old for both genders. The data collection was divided into two parts: 1) Big five personality trait test to collect the data about Openness, Conscientiousness, Extroversion, Agreeableness, and Neuroticism (OCEAN) personality traits (Goldberg, 1992) of the participants; 2) Measuring the core affect of participants based on Pleasure (P) and Arousal (A) mood dimensions after watching random movies for an hour. Three genres of movies (horror, comedy, and romance) were shown to the participants in 3 separate days to obtain P and A values for all the distinct genres. Whenever there was a positive change in any of mood dimensions, P and A could get +1 value, but in case of negative change and no change, P and A could get -1 and 0, respectively. These subjects were not asked to fill the questionnaire

anonymously, because there was no reason to answer the questions wrong on purpose. The author knew the subjects personally, and the second evaluation with the participants were made to find the most accurate answers. Therefore, the big number of sample size was sacrificed to have more accurate data collection in this study.

### Describing Mood Using Quantitative Methods

Measuring mood states is not an easy task because it depends on various factors and it is complicated to describe its nature for each of its state, but it is much simpler to measure the core of mood and emotion which is known as core affect (Russell, 2003). Pleasure (P) and Arousal (A) are known to be the most important independent factors to describe someone's mood. The presence and intensity of each one of these independent components can define a mood state in a simplified way (Mehrabian & Russell, 1974). In this study, P and A were used as main components of mood to measure someone's mood before and after watching a specific genre of movie. To measure the intensity of P and A was out of scope of this study. However, by measuring the intensity of P and A in the future studies, it will be possible to find novel psychotherapies for patients who are suffering from mood disorders. In Figure 1, P and A were illustrated to show how meaningful they are in order to investigate the interaction between mood, perception, cognition, and behavior using quantitative methods.

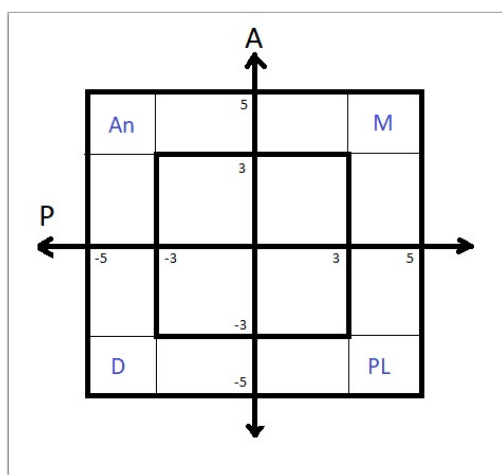


Figure 1: P = Pleasure; A = Arousal; An = Anxiety; D = Depression; M = Mania; PL = Pleasant Laziness (Mehraei, 2019).

### Nonparametric Methods

To use a specific statistic in the hypothesis testing, a researcher should be careful about the population assumptions related to the corresponding distribution and its parameters. However, in most of the studies, the distribution of the population and its parameters are unknown. Many researchers can solve this problem by taking a large sample size and using the central limit theorem in statistics. However, collecting data using large sample size can be time consuming, costly, and sometimes impossible. Therefore, nonparametric methods can be used as a method to deal with test-statistics to predict the unknown parameters of the population. In this study, nonparametric methods were used to test the possible relations between personality and mood states with watching specific movie genres.

## Results and Discussions

As explained in sampling and data collection section, the big five personality test of each participant was measured using Goldberg's method (Goldberg, 1992). The possible value for each of the Openness, Conscientiousness, Extroversion, Agreeableness, and Neuroticism personality traits can be a number between 0 to 100. The change of P and A mood components was measured for each individual after watching a specific genre of movie. The results are shown in Table 1.

Table 1: O = Openness, C = Conscientiousness, E = Extroversion, A = Agreeableness, N = Neuroticism, H-P = Change of Pleasure after watching a Horror movie, C-P = Change of Pleasure after watching a Comedy movie, R-P = Change of Pleasure after watching a Romance movie, H-A = Change of Arousal after watching a Horror movie, C-A = Change of Arousal after watching a Comedy movie, R-A = Change of Arousal after watching a Romance movie

Individual Number	O	C	E	A	N	H-P	C-P	R-P	H-A	C-A	R-A
Individual 1	80	60	40	30	50	-1	1	-1	1	-1	1
Individual 2	50	100	50	50	70	0	1	1	1	0	1
Individual 3	50	70	50	40	60	1	0	-1	0	1	1
Individual 4	70	90	50	70	70	-1	1	1	1	1	-1
Individual 5	65	57	35	7	75	-1	1	0	1	1	0
Individual 6	90	50	30	60	70	-1	1	0	1	-1	-1
Individual 7	30	90	30	70	70	-1	1	0	1	0	0
Individual 8	30	80	60	50	60	-1	1	0	1	0	0
Individual 9	70	100	50	50	40	-1	1	1	1	1	-1
Individual 10	30	70	20	80	85	0	0	1	1	-1	1
Individual 11	80	70	100	70	50	-1	0	1	-1	0	1
Individual 12	60	80	50	70	80	-1	1	1	1	0	-1
Individual 13	90	30	95	25	10	-1	1	1	1	-1	-1
Individual 14	100	100	80	40	30	-1	1	1	0	-1	-1
Individual 15	60	90	50	65	40	-1	1	1	1	-1	-1
Individual 16	60	90	20	90	30	0	1	1	0	-1	-1
Individual 17	10	70	30	90	5	-1	1	1	1	1	-1
Individual 18	100	90	70	60	30	0	1	1	0	-1	-1
Individual 19	50	30	80	30	30	-1	1	0	1	-1	0
Individual 20	95	100	60	90	30	0	1	-1	1	1	-1
Individual 21	75	90	30	20	40	0	1	1	1	1	-1
Individual 22	80	80	70	50	60	-1	1	1	1	-1	-1
Individual 23	60	90	50	40	50	-1	1	1	1	-1	-1
Individual 24	50	80	80	80	50	-1	1	1	-1	1	1
Individual 25	50	55	65	35	45	0	1	0	1	-1	1
Individual 26	80	80	10	80	60	0	1	1	0	1	-1
Individual 27	50	90	70	60	20	0	0	1	1	0	-1
Individual 28	50	70	30	50	100	1	1	-1	1	0	-1
Individual 29	50	75	65	90	35	-1	1	0	1	1	0
Individual 30	100	70	90	75	40	1	1	-1	1	1	0



Spearman correlations as nonparametric correlations were calculated for all the attributes in Table 1 to investigate for any evidence for meaningful relations. There was not enough evidence to find any relation between watching comedy or horror genre of movies and OCEAN personality traits. However, a positive relation ( $r = 0.419$ ) for watching Romance movie was detected between Conscientiousness personality trait and Pleasure mood component with p-value 0.021. Moreover, two negative relations were observed from watching Romance movie: 1) Conscientiousness personality trait and Arousal mood component with p-value 0.038 ( $r = -0.381$ ); 2) Openness personality trait and Arousal mood component with p-value 0.038 ( $r = -0.38$ ). In addition, two internal negative relations were observed for personality traits and mood components separately: 1) Extroversion and Neuroticism with p-value 0.015 ( $r = -0.438$ ); 2) Pleasure and Arousal mood components for watching a Romance movie with p-value 0.044 ( $r = -0.371$ ).

Relative frequency of mood components (P and A) was constructed based on the movie genres in Table 2. The constructed relative frequency can be used as the test-statistic for nonparametric sign test and then to be compared with binomial distribution to find the level of confidence and p-value. Clearly, normal distribution can't be used because Central Limit Theorem can't be used with such small sample size.

Table 2: Relative frequency of mood components based on movie genres.  
The maximum values were given in the table, and  $P = 0$  and  $A = 0$  didn't take any maximum relative frequencies.

	P = +1	P = -1	A = +1	A = -1
Horror		60%	76%	
Comedy	86%			40%
Romance	60%			57%

Running nonparametric sign hypothesis tests based on watching a specific movie genre and its influences on mood components of individuals revealed that 1) Horror genre of movies can increase arousal mood component significantly with 99.9% confidence level; 2) Comedy genre of movies can increase pleasure mood component with p-value 0.001 (99.9% confidence level). The interpretation of the results will be given in the conclusion section.

## Conclusion

In this study, nonparametric methods were used to test whether the personality traits have an influence on movie preferences, and how significant watching a specific genre of movie can influence someone's mood state. As mentioned in the results section, a positive relation between pleasure mood component after watching a romance genre of movie with Conscientiousness personality trait was detected. This result suggests that those who have high Conscientiousness can increase their pleasure mood dimension by watching a romance genre of movie. So, those with high Conscientiousness personality trait can use this self-regulation method to avoid depression or anxiety based on Figure 1. Interestingly, a significant negative relation was found between Openness and Conscientiousness personality traits and arousal mood dimension after watching a romance genre of movie. This result suggests that those with low level of Openness and Conscientiousness personality traits can increase their arousal mood dimension by watching a romance genre of movie. This method can be used as a self-regulation method to avoid depression and pleasant laziness (Mehraei, 2019) based on Figure 1. In addition, a meaningful negative relation was observed in the results between pleasure and arousal mood components after watching a romance genre of

movie. This result suggests that independent of someone's personality traits and movie preferences, watching romance movies can increase the mood swings and individuals with bipolar mood disorder should avoid watching this genre of movie when they feel either depressed or experiencing manic trait. Moreover, there are other conclusions which can be derived from the results section regardless of personality traits using Table 2 and its corresponding hypothesis tests: 1) watching horror movies can significantly increase Arousal mood component. Therefore, people who suffer from anxiety and manic trait should avoid watching horror movies; 2) watching comedy movies can significantly increase Pleasure mood component. Thus, watching this genre of movies can be useful to avoid depression and anxiety.

Although nonparametric methods were useful to derive interesting conclusions out of the mentioned data in this study, a large number of sample size will be used to repeat the hypothesis testings using normal standard distribution with higher confidence levels in the future studies. Interesting results were obtained in this study to be considered in psychotherapies and self-regulation methods, but to validate the results, experts in clinical psychologists should run tests on patients in practice in the future studies.

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***No Better if Not Trustworthy: The Unreliability in Farmers' Agricultural Method***

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**Abstract**

Adoption of agricultural technology results in a variety of positive outcomes for individuals and society, such as increased productivity, income maximization, cost reduction, environmental and health advantages. For several years, the Thai government has spent a lot of money on a campaign trying to persuade farmers to adopt organic practices. However, farmer adoption remains low. Recent academic literature had presented evidence that social learning and monetary subsidies are the major factors determining farmers' technology adoption decisions. In this study, a lab in the field experiments was observed 600 Thai farmers in rural areas with a simulated situation of farming between the conventional and organic rice practice to indicate the simulated process of farmers' adoption through the various types of motivations in order to guide the direction of Thai agriculture. Based on the results from the random-effects probit model, the social learning motivation, or role model motivations, can motivate farmers to adopt organic practices rather than farmers who were not motivated at all, notably when the role model has the same economic status as them. However, its efficacy tends to remain only in the short run and diminishes after that. Meanwhile, both cost and income subsidies also influence farmer adoption with a similar effect, unless the income subsidies are more likely to be sensitive to farmer decisions rather than cost subsidies in the long run.

Keywords: Adoption, Income Subsidy, Cost Subsidy, Social Learning, Role Model

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## 1. Introduction

Organic rice practice produces more benefits in a variety of ways for both the commercial and public sectors as compared to conventional rice practice (Mendoza, 2004). However, adopting organic rice practice requires immediate upfront costs such as more labor, machinery, and organic fertilizer. It also takes a great amount of time, effort, as well as financial and economic resources to succeed. (Research Institute of Organic Agriculture, 2018). As a result, farmers' rates of adaptability are poor. Another factor that could be a major contributor to this low adoption of farmers is loss aversion (Liu, 2013; Osberghaus, 2017; Visser, Jumare, and Brick, 2019). Likewise, Xinjian Chen et al. (2018), stated that the main barriers of farmers' decisions are bearing the high cost and long payback period due to the concern of production risk and climate volatilities even though in the long run they can get more benefit from their farming if they quickly adapt to the cultivation method. In this sense, there is a behavioral bias between the theoretical logic and performance of agriculture work. For example, farmers may face the risk of losing yield, especially during the early period of converting from conventional to organic practice. Therefore, they may be unwilling to bear these up-front costs for an uncertain future gain, resulting in the low rate of adoption of organic rice practice, although the benefits of organic rice practice could outperform conventional ones in the long term.

One possible way to increase adoption would be to offer temporary conditional incentives on adopting organic rice practices. Theoretically, incentives should persuade farmers to adopt the new practice if they are large enough to reduce risk, particularly during the early stages of adoption (Ambler et al., 2020). In addition, the forms of incentives would also be important because people seem to respond differently to various forms of incentives even when the values of incentives are the same (Gneezy et al., 2011). In this study, we focus on two forms of widely used subsidies, which are the subsidy for production cost and income subsidy.

In addition, a form of agricultural role model was used to inspire farmers to adopt organic practice through a massive amount of government spending every year. The agricultural role models were supported by the government to distribute the agricultural knowledge and technology to other farmers around them. In other words, the influence of information diffusion through learning from farmer-to-farmer cloud impacts the adoption of organic rice practice. Bendura and Schunk (1981) mentioned that social learning can substantially inspire the image of the future for people in society. Learning could be induced as farmers tend to learn more from their peer farmers than from community leaders or extension staff (Mobius and Rosenblat, 2014; Benyishay and Mobarak, 2019). Furthermore, there are anecdotal pieces of evidence suggesting that farmers may observe and imitate the decision of farmers who share similar conditions such as characteristics or skills, etc. that are comparable to the conditions facing them (Attvanich et al., 2019).

We conduct a lab-in-the-field experiment with rice farmers in the rural area of Thailand to test two potential strategies to mitigate this issue. Firstly, the potential strategies include social learning through different types of peer farmers, we divide the farmer into three groups according to their wealth: the same, lower, and higher endowment. Secondly, incentives are in two forms, cost, and income subsidies. Therefore, the design is to test whether we can improve organic rice adoption through social learning by involving farmers closer to various types of other farmers who are set as organic rice promoters and what subsidy form is more effective to induce more organic rice adoption.

## 2. Methodology

To answer the research questions, a lab-in-the-field experiment is designed to observe farmers' decisions of choosing between two cultivation methods, conventional rice practice and organic rice practice. The experiment is conducted in rice farming communities in Khon Kaen, Buriram, and Surin provinces, which are located in the Northeast region of Thailand. In the experiment setting, the two cultivation methods have varied the cost and the return in different ways. The cost of cultivation and return of conventional rice are fixed for every round of the experiment, representing cropping seasons. The return is barely higher than the cost of cultivation to mimic the real situation of conventional rice where the price is low. Meanwhile, organic rice farming contains higher cultivation costs than the conventional one, and the return in the first three rounds of the experiment is set to be lower than the cost to imitate the actual practice for planting organic rice, which needs time to improve soil fertility during the early stage of adoption. After that, the yield will increase to almost the same as conventional rice resulting in higher profit as the higher price by the demand of high quality for organic rice.

Specifically, in the experiment setting, the cost of cultivation conventional rice is 6 Baht/Rai and the cost of growing organic rice is 8 Baht/Rai. The return of conventional practice is consistently assumed to be 8 Baht/Rai for all rounds (seasons). The return of the organic method, on the other hand, is 5 Baht/Rai in the first three rounds (seasons), which represents the low yield during the early transformation. However, the return of organic practice increases to 12 Baht/Rai in the fourth round onward representing an increase of yield after soil fertility is improved.

In addition to cost and return of cultivation, the 20 percent risk of losing some yields is assumed in both cultivation methods as uncontrollable damage such as drought and flood. Practically, when it occurs, the return of conventional practice drops from 8 Baht/Rai to 4.8 Baht/Rai, while the return of organic practice drops from 5 Baht/Rai to 1.5 Baht/Rai for the first three rounds (seasons) of adopting organic practice and from 12 Baht/Rai to 7.2 Baht/Rai since the fourth round (season) of continuously choosing this practice. Note that if there is any switching back from organic practice to conventional practice, the cost and the return of organic practice are reset. The experiment is set to ten rounds as ten seasonal croppings. In each round, participant farmers are asked to choose what practice they design to invest in. To motivate participants to seriously consider what practice they will choose in each round, the net profit that occurred in the experiment is exchanged for real money and paid to participants. Given ten rounds (seasons), without any interventions with the conditions of investment and return in the experiment, the rational participants are assumed to continuously choose conventional practice for all ten rounds to maximize the highest profit as the best strategy when compared to organic practice. Table 1 presents the net return of each method from rounds 1-10.

Table 1. The possibility of the highest payoff of the two methods.

Condition	Method I	Method II
1 <sup>st</sup> -3 <sup>rd</sup>		
Cost (Baht/ Rai)	6	8
Return (Baht/ Rai)	8	5
Highest payoff (Bath/ Rai)	+6	-9
4 <sup>th</sup> -10 <sup>th</sup>		
Cost (Baht/ Rai)	6	8
Return (Baht/ Rai)	8	12
Highest payoff (Bath/ Rai)	+14	+28
Total ten rounds (Bath/ Rai)	+20	+19

### *The implementation*

The experiment was set up at the center of each village. Before the experiment started, participants are asked to answer a short questionnaire. After that, the experimenters start to encourage participants by introducing a scope of activities, then lead them to watch a video clip that explains the steps and process of investment of two practices in the experiment. The video clip consists of the conditions of investment, the cost and the return, and the payoff computation. Moreover, to diminish the misunderstanding, participants are allowed to play two example rounds to amend the process of investment in the experiment.

Initially, participants have endowments as a proxy of their economic status in the experiment consisting of lands, savings, and debt. To avoid copying answers, participants are asked to randomly select an equipment box by themselves, and no one knows other endowments in the boxes, although all the boxes have the same endowments. A box consists of a card of ten rai of land for planting (about 1.6 hectares), a card of 120 Baht for debt invoice, and 100 Baht in virtual money. Figure 1 provides the example picture of the box.

The experiment is run for ten rounds, in each round, after the experimenter announced a round number, the participants are asked to choose what practice between organic and conventional practices they are going to invest in for such round. The cost and return between two practices are always shown on the screen during the experiment to help them recall the cost and return of both practices before making a decision. Note that they cloud choose only one method and has to invest in all ten rai of lands in each round.

Figure 1. Example of an endowment box.



In each round, after participants have finished investment, the sub box is collected by our staff to easterly control for computing the return and to prevent cheating. The experimenter



then begins to bring a black box that contains 10 balls for participants to draw a ball. This step is to determine the effect of uncontrollable factors for losing some yield in each round. According to the probability of uncontrollable factors is 20 percent so the black box has two orange balls for the losing case and eight white balls for the neutral case.

As the consequence, the participants have 10 rai for planting rice, so the cost and the return are multiplied by 10. For conventional rice practice, the cost of investment per rai is 6 Baht while the return is 8 Baht/Rai in a neutral situation and is 4.8 Baht/Rai in losing a case, so the net payoff of each case is as follows:

- Neutral case: return  $(8*10)$ - cost  $(6*10) = 80 - 60 = 20$  Baht.
- Losing case; return  $(4.8*10) - \text{cost } (6*10) = 48 - 60 = -12$  Baht.

Meanwhile, for the organic practice, the cost is 8 Baht/Rai, and the return for the neutral situation is 5 Baht/Rai in the first three rounds and 12 Baht/Rai since the fourth round. Besides, in the losing case, the return drops from 5 Baht/Rai to 1.5 and from 12 Baht/Rai to 7.2 Baht/Rai respectively so the net payoff of each case is as follows

- Neutral case for first three rounds: return  $(5*10)$ - cost  $(8*10) = -30$  Baht.
- Neutral case for since fourth round: return  $(12*10)$ - cost  $(8*10) = 40$  Baht.
- Losing case for first three rounds: return  $(1.5*10)$ - cost  $(8*10) = -65$  Baht.
- Losing case for since fourth round: return  $(7.2*10)$ - cost  $(8*10) = -8$  Baht.

Without any interventions, the best possible outcome for ten rounds is to continue choosing conventional rice practice, which provides a higher payoff than organic rice practice because the net highest payoff of conventional rice practice is 200 Baht  $(20*10)$ , while the net highest payoff of organic rice practice is 190 Baht  $((3*-30) + (7*40))$ . Hence, without any interventions, it would be more likely that the conventional practice would have a higher chance to be selected by participant farmers.

### ***Interventions and extra conditions for the treatment groups***

#### ***Cost and income subsidies***

Two types of subsidies are used to motivate participants to organic practice. The first type of subsidy is cost subsidy. Whenever participants adopt organic practice within the first three rounds, they are compensated the cost for 5 Baht/rai so the compensation for the participants who choose organic practice since the first round is 15 Baht/rai, 10 Baht/rai for those who switch in the second round, and 5 Baht/rai for those who switch in the third round. There is no subsidy for those who switch to organic rice in the fourth round and onward.

The second type of subsidy is income subsidy. Instead of compensating cultivation cost, participants in this group are guaranteed to get an additional return of 5 Baht/Rai within the first three rounds, which is the same amount as the cost subsidy. Technically, farmers should decide in the same direction if they receive the same amount of subsidy. However, different forms of subsidies may differently affect decisions even the amounts of subsidies are the same especially if psychological effects on people's minds are different between these types of subsidies.

### ***Role model information***

To test the hypotheses, the different economic status of the role models is varied by the endowments, land, saving, and debt. Namely, there are three types of role model farmers who differ in the level of endowments, which are higher, lower endowments, and equal endowments compared to participant farmers. All types of role model farmers are designed to choose only the organic method and frame as the one who has the highest payoff from the experiment. The role model's endowments and decisions are shown to participants in every round before participants make decisions of what practice they will choose in such rounds.

Table 2. Details of interventions for each experimental group

Experimental group	Subsidy		Types of role model farmer		
	Cost	Income	Same endowment	Lower endowment	Higher endowment
C	-	-	-	-	-
T1	✓				
T2		✓			
T3			✓		
T4				✓	
T5					✓

### **3. Data and Estimation**

#### ***Sample***

Our participants were selected from two types of farmers which are conventional and organic rice farmers. The majority of our sample, therefore, is conventional rice farmers presents in table 3 which is categorized by provinces and types of farmers. Note that the randomization unit is at the village level where all participants in the same village are assigned to the same experimental group. We randomly assigned each village to one of the experimental groups stratified by province. Six hundred farmers were randomly separated into six experimental groups, an experimental group consisting of 10 subgroups, and each subgroup have 10 participants. From this number of participants, 440 farmers are practicing in the conventional method and 160 are farmers who are practicing in the organic method.

Table 3. Number of samples based on random assignment

Experimental group	Buriram		<u>Khon Kaen</u>		<u>Surin</u>		Total
	Conventional farmer	Organic farmer	Conventional farmer	Organic farmer	Conventional farmer	Organic farmer	
C	20	0	30	20	30	0	100
T1	10	20	20	10	10	30	100
T2	30	10	10	10	40	0	100
T3	20	0	20	20	20	20	100
T4	50	0	30	0	0	20	100
T5	40	0	30	0	30	0	100
Total	170	30	140	60	130	70	600

### Empirical Strategy

To evaluate the impacts of interventions on organic rice practice adoption in the experiment, we estimate two sets of specifications using regressions at the participant level. Our first set of specification focuses on analyzing data from organic and conventional farmers. Since, the data obtained from the lab-in-the-field experiment has multilevel or clustered structure due to the longitudinal nature, an approach used to analyze such clustered data is the use of random effect regression analysis. Provided that the outcome variable in this study is a decision whether to adopt organic rice practice or conventional rice practice, the outcome variable is in a dichotomized manner or considered as a binary outcome. Thus, a random effect probit model is applied to estimate all model specifications described further. The first model of to this specification focuses on analyzing all treatments together. The model specification for this purpose can be presented as follows:

$$Dc_{it} = \alpha + \beta_3 PE_i + \beta_4 PL_i + \beta_5 PH_i + \beta_1 SC_i + \beta_2 SI_i + \gamma Rl_{it} + \beta X_i + \varepsilon_i \quad (1)$$

where  $Dc_{it}$  is decision of a farmer  $i$  at round  $t$ .

It is equal 1 if a farmer selects organic rice practice and 0 otherwise.  $PE_i$ ,  $PL_i$ ,  $PH_i$ ,  $SC_i$ , and  $SI_i$ , represent dummy variables of information from role model farmer with the same endowments treatment, information from role model farmer with lower endowments treatment, and information from role model farmer with higher endowment treatment, subsidy cost treatment, and subsidy income treatment, respectively. Note that decision made by participants in control group is used as reference in estimation and this is applied to all specification explained below.  $Rl_{it}$  is a variable represented outcome of losing some yield of farmer  $i$  at round  $t$ .  $Rl_{it}$  is equal to 1 if the orange ball is drawn meaning that farmers loss some yield in that round, and 0 otherwise.  $X_i$  is a vector of control variables represented farmers' characteristics and province alternative specific constant where Surin province is used as reference.

The second model of this specification highlights the short-run effects of information provided by different types of role model farmers. Since, the three types of role model farmers, same endowment as participants, lower endowment than participants, and higher endowment than participants, adopt organic rice practice in the first round of the experiment,

they take risk of losing income in the first three rounds (seasons). If participants adopt organic rice practice in one of the first three rounds of the experiment, it would suggest that information from role model farmers would strongly affect their decision. To analyze these impacts on enhancing organic rice adoption, we conduct an analysis only of those in role model farmer information treatments for the decision made in the first three rounds of the experiment. The model to test this question is presented below:

$$Dc_{it} = \alpha + \beta_3 PE_i + \beta_4 PL_i + \beta_5 PH_i + \gamma Rl_{it} + \beta X_i + \varepsilon_i \quad (2)$$

where  $t = 1, 2, 3$ .

The third model of this specification focuses on the long-run effects of information provided by different types of role model farmers. To test clarify these effects, we analyze data from those in role model farmer information treatments for the decision made in round 4 to round 10 of the experiment. The model of this test is as follows:

$$Dc_{it} = \alpha + \beta_3 PE_i + \beta_4 PL_i + \beta_5 PH_i + \gamma Rl_{it} + \beta X_i + \varepsilon_i \quad (3)$$

where  $t = 4, 5, 6, \dots, 10$ .

The fourth model of this specification is to test whether the short-run effects of cost subsidy and income subsidy on enhancing organic rice adoption are different or not. To test the short-run effects of these forms of subsidies, we restrict our analysis for the decision made in the first three rounds of cost subsidy and income subsidy treatments as the subsidies are only available for the first three rounds of the experiment. The model specification to test the short-run effects of subsidies is as follow:

$$Dc_{it} = \alpha + \beta_1 SC_i + \beta_2 SI_i + \gamma Rl_{it} + \beta X_i + \varepsilon_i \quad (4)$$

where  $t = 1, 2, 3$ .

The final model of this specification is to test whether the long-run effects of cost subsidy and income subsidy are different. After the third round of the experiment, both subsidies are not available anymore to farmers. Farmers may convert to conventional rice practice after the subsidies are ended especially those in subsidy cost treatment as the cost of practicing organic rice is higher than the conventional counterpart. To answer this question, the model specification is the same as equation 2 but the data used to estimate this effect is from round 4 to round 10 of both treatments where both subsidies are not available for farmers. The model specification for this test is as follows:

$$Dc_{it} = \alpha + \beta_1 SC_i + \beta_2 SI_i + \gamma Rl_{it} + \beta X_i + \varepsilon_i \quad (5)$$

where  $t = 4, 5, 6, \dots, 10$ .

#### 4. Results

First, we present the estimation results from entire samples, which include both conventional and organic rice farmers. Table 4 presents the results from entire samples following model specifications 1 to 5. The full model column reveals the results of all interventions on farmers' decisions whether to adopt organic rice practice.

All of the interventions in our model were capable to persuade farmers decision to adopt the organic practice by the significant positive coefficient. The characteristics of role model farmers were separated into three types which are the role model farmers who have the same endowment, lower endowment, and higher endowment, the significant positive coefficient suggested that farmers in these treatments are more likely to adopt organic rice practice more than farmers in the control group (Coefficients are 3.39, 1.95 and 2.09, respectively, P-value < 0.01).

However, the sensitivity of different types of role model farmers was tested to answer the impact of convincing by the different characteristics of role models. Interestingly, the coefficient testing stated that the impact of the information provided by role model farmers who share the same level of endowments as the participants is significantly larger than others for convincing participants to adopt organic rice, while the impact of information by the lower endowment and higher endowment are not different from each other (p-value = 0.595). as the result, given the information by role model farmers would increase organic rice adoption, especially for the role model farmers who share the same characteristics as them.

The next intervention is both types of subsidies, the cost and income subsidies also persuade farmer's decision to adopt organic rice practice with the positive significantly coefficients (3.22 for cost subsidy and 4.29 for income subsidy, p-value < 0.01) which means, farmers who are subsidized by cost and income are more likely to adopt organic practice than farmers who did not were subsidized.

The results also indicate that gender and age affect farmers' decision to adopt the organic practice. Male farmers seem unlikely to adopt organic farming compared to female farmers. While young farmers are going to adopt organic practices than old farmers. The farmers who practice organic rice farming in the real life are more likely to adopt the organic practice in the experiment rather than farmers who practice in conventional.

### ***Short-run and long-run effects of different types of role model farmers***

We also test the short-run and long-run effects of social influence to promote organic rice practice. This intervention is based on social learning from different types of role model farmers. Role model farmers act as communicators who provide information about how they made decisions on organic rice adoption. For our experiment, all types of role model farmers adopt organic rice in the first round of the experiment and continue to the end of the experiment. This means that they get negative returns since the experiment started, and will have chances to regain positive returns in rounds 4-10. If participant farmers use the information and follow advice from role model farmers, they should adopt the organic practice as early as them. To test this, we restrict our estimation for the short-run impact of information provided by role model farmers on organic rice adoption from rounds 1- 3 of the experiment. The results of this specification are presented in the column "Short-run effect of social learning". The results of the coefficient of the same, lower and higher endowments are 5.66, 3.84, and 4.41, respectively, which clearly show that first, the impacts of all types of role model farmers seem to be larger than what we have in the "The full model" indicating that in the short-run information provided by role model farmers would be able to advise farmers to adopt the organic practice. When we consider information provided from what type of role model farmers would be the most effective to convince farmers to adopt the organic practice, the result suggests that role model farmers with the same endowments as participant farmers are the ones whose information is the most effective to persuade

participant farmers to choose organic practice. The information provided by role model farmers with higher or lower endowments seems to have the same impact for enhancing organic adoption because the two coefficients are not statistically different from each other at a significant level of 0.31 ( $p\text{-value} > 0.10$ ).

We also found similar results from the long-run effect of social learning, represented by column “Long-run effect of social learning” which shows the coefficient of the same, lower and higher endowments are 2.64, 1.43, and 1.71, respectively, on organic rice adoption. Information provided by role model farmers with the same endowments as participant farmers are still the most effective information to convince farmers to adopt the organic practice.

Table 4. Full data estimation results

Variables	Full model	Short-run effect of social learning	The long-run effect of social learning	Short-run effect of subsidies	The long- run effect o subsidies
<i>Role model farmers</i>					
Same endowment	3.390*** (0.000)	5.658*** (0.000)	2.644*** (0.000)		
Low endowment	1.952*** (0.000)	3.842*** (0.000)	1.434*** (0.000)		
High endowment	2.090*** (0.000)	4.414*** (0.000)	1.706*** (0.000)		
<i>Subsidies</i>					
Cost	3.221*** (0.000)			6.982*** (0.000)	3.171*** (0.000)
Income	4.286*** (0.000)			7.878*** (0.000)	4.810*** (0.000)
Orange ball	-0.167 (0.208)	0.169 (0.584)	-0.259 (0.186)	-0.445 (0.224)	-0.269 (0.298)
Gender	-0.490*** (0.005)	-0.663 (0.125)	-0.199 (0.296)	-0.342 (0.496)	-0.015 (0.953)
Age	-0.043*** (0.000)	-0.062*** (0.004)	-0.027*** (0.004)	-0.049** (0.043)	-0.031** (0.014)
Organic farmer	1.949*** (0.000)	3.603*** (0.000)	1.871*** (0.000)	2.061*** (0.001)	1.669*** (0.000)
Size of land	-0.005 (0.441)	-0.026* (0.087)	-0.013* (0.086)	0.000 (0.990)	-0.009 (0.367)
Ln(income)	-0.034 (0.642)	0.178 (0.295)	0.032 (0.659)	-0.640** (0.023)	-0.589*** (0.000)
Khon Kaen	-0.569*** (0.006)	-0.004 (0.994)	-0.072 (0.731)	-1.091* (0.065)	-1.147*** (0.000)
Buriram	1.207*** (0.000)	3.181*** (0.000)	2.422*** (0.000)	-0.712 (0.244)	-0.365 (0.295)
Constant	2.738*** (0.008)	-0.443 (0.862)	0.631 (0.555)	9.344** (0.012)	8.999*** (0.000)
Log-likelihood	-783.260	-387.359	-371.871	-234.028	-227.439
Observation	6,000	1,200	2,800	900	2,100
Individual	600	400	400	300	300

Note: Numbers in parentheses are p-value. \*\*\*, \*\*, and \* are significant level at 1%, 5%, and 10%, respectively.

### ***Short-run and long-run effects of cost and income subsidies***

Next, we turn to the results of testing the short-run and long-run effects of subsidies. Column “Short-run effect of subsidies” presents the result of model specification (4) where data occurred in rounds 1-3 in the experiment is employed for estimation. This specification aims to answer whether the effects of cost subsidy and income subsidy are different in the first three rounds of the experiment where both subsidies are available to farmers who adopt organic rice practice. The results show that the coefficients of Cost and Income variables are 6.98 and 7.88, respectively which are positive and statistically significant and the size of both coefficients are statistically significantly ( $p\text{-value} < 0.01$ ) larger than those in the Full model specification suggesting the impacts of both subsidies on convincing farmers to adopt organic practice are more intense in the short-run. We then test the size of the cost subsidy coefficient and income subsidy coefficient to check whether they are different from each other. Our test result indicates that even the coefficient of cost subsidy seems to be a bit smaller than that of income subsidy, they are not statistically different ( $p\text{-value} > 0.10$ ) suggesting that both forms of subsidies provided the same effect for persuading farmers to adopt the organic practice in the short run.

We next move to the long-run effect of these subsidies where data from rounds 4-10 of the experiment are used. Note that starting from round 4 there are no subsidies for organic rice practice available for farmers anymore. However, farmers are still freely allowed to choose what types of practices, conventional and organic practices, they want to choose in each round. The results of this test are presented in the column “Long-run effect of subsidies”. First, the results show that the effects of both forms of subsidies are reduced in the long run as their coefficients (3.17 for cost and 4.81 for income subsidy) are statistically significantly smaller than those of short-run effect ( $p\text{-value} < 0.01$ ). We then test the coefficients of cost subsidy and income subsidy on organic adoption. The test result suggests that the coefficient of income subsidy is significantly larger than that of cost subsidy ( $p\text{-value} < 0.05$ ).

## **5. Conclusions**

The question of how to persuade farmers to adopt organic rice practice. Using a lab-in-the-field experiment, this study finds that temporary subsidies either cost subsidy or income subsidy would be able to increase adoption of organic rice before the point when they become privately profitable. When comparing the long-run effects of both subsidies, our results reveal that income subsidy would be more effective than cost subsidy. This is because the cost subsidy may create a psychological effect after it is removed as farmers treat instantly increase the cost of organic rice that they need to pay by themselves as a loss. To avoid this loss, it would be possible that some would convert back to conventional rice because its production cost is less than that of organic practice. On the other hand, farmers with income subsidies do not feel removing income subsidies is a loss because the return from organic rice practice is significantly higher than that of conventional practice after the subsidy is ended.

In addition, even though, we find that information provided by role model farmers is also important as it generally increases the adoption rate of organic rice, the information provided by what types of role model farmers is much more important. This point is interesting in which if we want to increase organic rice adoption through social learning, which may provide better cost-effectiveness than subsidy regime, the main focus should be highlighted on what type of farmers should be an early adopter or role model farmer who could make

their advice more credible to others. Our finding suggests that participant farmers seem to follow organic rice adoption advised by a role model farmer whose characteristics are the same or similar to them.



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***Relationship Between Religiosity and Receptive Attitude Toward Muslims  
Among Japanese Students***

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**Abstract**

With a growing Muslim population in Japan, there is an increasing need to understand and foster a positive attitude to live in harmony with Muslims. However, reports show that Japanese people are confused by specific religious views of Muslims in their interactions (Nakano & Tanaka, 2017). They also refrain from discussing religion as they consider it private, keeping their distance from Muslims (Nakano & Tanaka, 2018). This study explored factors contributing to Japanese people's acceptance of Muslims by incorporating religious views and examining their relationship with receptive attitudes. We believed that Japanese people's views on religion would be vital in identifying their attitude toward Muslims. The questionnaire survey covered these scales: typical religiosity; curiosity; general acceptance of others, and moreover, image of Muslims; receptive attitude toward Muslims; and knowledge about Muslims. Valid responses were obtained from 194 Japanese university students. Covariance Structure Analysis showed that: (a) the stronger the religiosity about being protected by God and Buddha, the more receptive they were, (b) the more negative their view of Muslims, the lower the level of acceptance was, and (c) greater interaction and knowledge reduced negative images. Furthermore, curiosity and acceptance of others did not significantly affect receptive attitudes; this suggests that: (a) the strength of unique religiosity of Japanese people related positively to receptive attitudes toward Muslims, who were seen as highly religious, (b) although Muslims are perceived as a special out-group for Japanese, opportunities to interact or gain correct knowledge reduced negative images and fostered receptive attitudes.

**Keywords:** Muslim in Japan, Receptive Attitude, Religiosity

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## **Introduction**

### **Muslims in Japan**

With a growing Muslim population in Japan, there is an increasing need to foster a positive attitude and enhance harmony between communities. According to the “Statistics on the Foreigners Registered in Japan,” the Muslim population in the country was estimated to be around 200,000 at the end of June 2018 (Tanada, 2020). Although this is less than 1% of the total population, it is expected to increase in the future with the Immigration Control Law being revised to accept foreign skilled workers, and the increase in the number of international students.

With the number of international students from Islamic countries at Japanese universities increasing, efforts are underway to meet the religious needs of Muslim students and to be more understanding toward them. The presence of a large number of Muslims is a relatively new phenomenon for Japanese universities and society. Muslims are a minority in Japanese society, as indicated by their population numbers. Islamophobia or prejudice against Muslims has been in the news in many parts of the world, and the rapid increase in the number of Muslims could make a non-Muslim society like Japan wary of Islam and Muslims (Yagi, 2020). In fact, it is reported that the Japanese people feel confused by the religious views of Muslims when they interact with them (Nakano and Tanaka, 2017). In addition, the Japanese people refrain from discussing religion because they consider it private, and maintain distance from Muslims (Nakano & Tanaka, 2018). This confusion and interaction distance could be because the Japanese people have little interest in religion, and many perceive themselves as having no religious beliefs (NHK Broadcasting Culture Research Institute, 2015).

### **Acceptance of Muslims by the Japanese**

What are the factors that could foster an acceptive attitude toward Muslims among the Japanese people? However, there are very few studies on perceptions and attitudes toward Muslims in Japan. According to Kondo and Mukai (2017), with an increasing number of people meeting and interacting with Muslims, with people having more stable self-identity, and with people trusting others more, people are likely to have a more receptive attitude toward an external group such as Muslims. Moreover, as more people have strong perceptions of threat in response to Muslims, and have a more stereotype to Muslims, the receptive attitude toward Muslims would worsen/be lowered. Ogan, Willnat, Pennington, and Bashir (2014) conducted a survey about the image of Muslims in the US, UK, France, Germany, and Spain and reported that the more educated people were, the more favorable they were toward Muslims. In contrast, younger and more conservative people showed a more negative attitude toward them. A study exploring the determinants of Japanese attitude toward Muslims (Okai & Ishikawa, 2011) showed that the greater the interest in other cultures and the more positive the image of Muslims, the higher the receptive attitude toward them. Although there are only a few studies related to receptive attitude toward Muslims, its determinants are not sufficiently explored (Kondo & Mukai, 2017).

Thus, this study aims to explore the factors influencing a receptive attitude toward Muslims among the Japanese people. Allport (1954) reported that devout Christian believers showed a tolerant attitude toward pagans. This shows the possibility that religiosity may influence receptive attitude toward Muslims among the Japanese as well. This study explores the

relationship between religiosity and receptive attitude toward Muslims in Japan, as a factor contributing to the acceptance of Muslims among the Japanese.

### **Japanese Religiosity**

Regarding religiosity among the Japanese, the Yomiuri Shimbun newspaper (2008, May 30) indicated that although few Japanese engage in religious behavior daily, more than half believe that the soul survives in some form after death. Japanese religiosity is not as simple as “no religious beliefs” or “atheist,” but is unique from an international perspective (Matsushima, Kawashima, and Nishiwaki, 2016).

The unique Japanese religious attitude is measured by Kaneko (1997). The Japanese religious attitude (Kaneko, 1997) is found to consist of three factors: “Pro-religiousness,” “Belief in Soul,” and “Belief in Guardianship. “Pro-religiousness” is a factor that indicates whether a person has a positive or negative attitude toward religion generally. High scores on this factor indicate an easy acceptance of or tolerance toward religious objects, while low scores indicate an aversive behavior toward religious objects. The “Belief in Soul” is a factor that expresses respect for the dead and belief in an afterlife. It is the belief that the spirits of the dead will be possessed if offerings are not made to them, and that these possessions will not disappear unless they are exorcised through magical rituals. This is unique to the Japanese. The “Belief in Guardianship” is a factor that expresses gratitude to God and Buddha for protecting us in every aspect of our lives. It is the idea that one's life is possible because of God and Buddha. This measure of Japanese religious attitudes has been used by numerous researchers and found to be highly reliable (Matsushima et al., 2016). Kaneko's scale is an example of accurately expressing the religiosity of the Japanese. In this study, we will incorporate three elements of religiosity—“Pro-religiousness,” “Belief in Soul,” “Belief in Guardianship”—into our analysis as a measure of Japanese religious attitudes.

### **The Research Processes**

The research has two steps: preliminary investigation and main survey. First, examining the image of Muslims among Japanese students. Since previous studies have shown that image influences receptive attitude, we examined the effects of the image. Subsequently, the results of the preliminary survey—which explored the image of Muslims among the Japanese people through open, descriptive questions—were used in the analysis of the main survey. The preliminary items hypothesized to be related to receptive attitude are as follows: curiosity, acceptance of others, interest in foreign countries, interest in Islam. From the previous study (Kaneko, 1997; Kondo & Mukai, 2017; Quillian, 1995), the above variables were considered to influence acceptance attitudes. The results of the correlation analysis indicated that “curiosity” and “acceptance of others” were the likely determinants of receptive attitude; therefore, the present survey added “curiosity” and “acceptance of others” to “religiosity” to analyze their relationship with receptive attitude.

Main survey examines the effects of the image of Muslims, Japanese religiosity, curiosity, acceptance of others, gender, age, contact experience with Muslims, and knowledge of Islam on “receptive attitude toward Muslims” by the Japanese.

## Preliminary Investigation

### Purpose

The purpose of the preliminary investigation is to clarify the image that the Japanese people have of Muslims and to identify the variables that may be associated with the receptive attitude toward Muslims.

### Method

#### Participants and Procedures

We conducted a questionnaire survey with 51 Japanese undergraduate and graduate students (20 male and 31 female participants), asking, image of Muslim, receptive attitude toward Muslims, curiosity, acceptance of others, interest in a foreign country, interest in religion and interest in Islam. A qualitative analysis was conducted to explore the image of Muslims using the KJ method (Kawakita, 2005). The other questions were answered on a 5-point scale (1: I do not agree with it at all; 5: I strongly agree with it). Moreover, we examined the correlations between the variable items.

#### Instrument

(a) Image of Muslims

The respondents were asked, “*What image do you have of Muslims?*” and told to write their responses on a total of 12 cards.

(b) Receptive attitude toward Muslims

The respondents were asked the following items: “I think I can be friends with a Muslim” and “I think I can marry a Muslim” and were asked to rate their responses on a 5-point scale (1: I do not agree it at all; 5: I strongly agree with it).

(c) Curiosity

The respondents were asked to answer a 5-point scale for the items “*I am curious*” and “*I get excited when I encounter new things.*”

(d) Acceptance of others

The respondents were asked to rate their response on a 5-point scale for the item, “*I do not care if my friends think differently than me.*”

(e) Interest in a foreign country

The respondents were asked to rate their response on a 5-point scale for the item “*I want to live in a foreign country.*”

(f) Interest in religion

The respondents were asked to rate their response on a 5-point scale for the item “*I am interested in religion.*”

(g) Interest in Islam

The respondents were asked to rate their response on a 5-point scale for the item “*I am interested in Islam.*”

## Results

### 1. Image of Muslims

A total of 101 cards was obtained by analyzing the comments of Japanese students. From the analysis, nine primary categories were summarized pertaining to the image of Muslims: “rigorous,” “difficult to engage,” “unknown,” “frightening,” “pious,” “disdainful of women,” “mercantile,” “happy,” “large in numbers.” The results show that the image of Muslims was relatively negative. These are further detailed in Table 1. Other smaller categories were identified are as follows: “serious,” “strict in precepts,” “hard work,” “zealous in faith,” “follow religious rules,” “scary,” “extremist,” “terrorism/war,” “out of touch with Japanese,” and “not sure.”

(a) Rigorous (32)	(b) Pious (24)	(c) Frightening (19)	(d) Unknown (7)	(d) Difficult to engage (6)
<ul style="list-style-type: none"> <li>• serious (8)</li> <li>• strict in precepts (17)</li> <li>• hard work (7)</li> </ul>	<ul style="list-style-type: none"> <li>• zealous in faith (6)</li> <li>• follow religious rules (18)</li> </ul>	<ul style="list-style-type: none"> <li>• scary (6)</li> <li>• extremist (7)</li> <li>• terrorism/war (7)</li> </ul>	<ul style="list-style-type: none"> <li>• not sure (5)</li> <li>• out of touch with Japanese (2)</li> </ul>	
(e) Large in numbers (4)	(f) Disdainful of women (7)	(g) Happy (1)	(h) Mercantile (1)	(i) Large in numbers (4)

Table 1: The categories of image toward Muslims.

### 2. Correlation Analysis between Receptive Attitude toward Muslims and Each Variable

A correlation analysis between receptive attitude “I can be friends with a Muslim” and the other items was conducted (Table 2). The four items that were significantly correlated were “I could marry a Muslim,” “I am a curious person,” “I get excited when I encounter new things,” and “I do not care if my friends think differently than me.” The results of the correlation analysis indicated that “curiosity” and “acceptance of others” were the likely determinants of a receptive attitude. Therefore, “curiosity” and “acceptance of others” were added to “religiosity” to analyze the relationship with receptive attitude toward Muslims in this study.

	1	2	3	4	5	6	7	8
1. I can be friends with a Muslim	–	.42**	.47**	.55**	.42**	.14	.16	.15
2. I could marry a Muslim		–	.15	.33*	.12	.21	.28*	.14
3. I am a curious person			–	.74**	.38**	.13	-.06	.07
4. I get excited when I encounter new things				–	.49**	.25	.11	.09
5. I do not care if my friends think differently than me					–	.10	-.01	-.07
6. I want to live in foreign country						–	.68**	.44**
7. I am interested in a religion							–	.74**
8. I am interested in Islam								–
						** $p < .01$	* $p < .05$	

Table 2: Correlations between each question item (n=51).

## Main Survey

### Purpose

The purpose of this survey was to identify the relationship between a receptive attitude toward Muslims and Japanese religiosity. Specifically, we examined the relationship between “Japanese religiosity,” as well as “image of Muslims,” “contact experience with Muslims,” “knowledge of Islam,” “curiosity,” “acceptance of others,” and “receptive attitude toward Muslims,” and attempted to test the hypothesized model shown in Figure 1

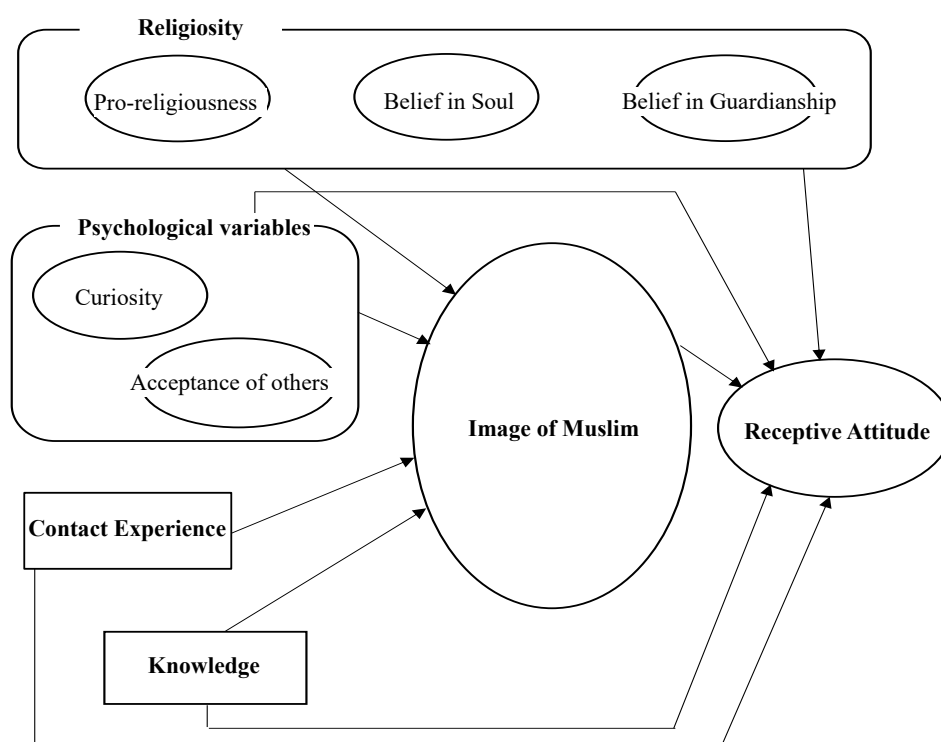


Figure 1: Hypothetical model of accepting attitudes toward Muslims.



## Method

### Participants and Procedures

A questionnaire survey of 210 Japanese undergraduate and graduate students was conducted at national universities in Japan. To avoid singling out an individual, the questionnaires were kept anonymous—no details were collected regarding individuals' identity. A total of 194 valid responses were included in the subsequent analysis (81 male participants, 112 female participants, 1 other-gender participant; Mean age 20.29 years).

### Instrument

The questionnaire included questions regarding religiosity of Japanese, image of Muslims, receptive attitude toward Muslims, curiosity, general acceptance of others, and moreover, and demographics, as follows:

**(a)Religiosity of the Japanese:** the scale of religious attitude by Kaneko (1997) was used in the analysis of this research to measure religiosity of Japanese students. A total of 17 items were used in this research, including 15 items related to “pro-religiousness,” “belief in soul,” and “belief in guardianship,” plus two new items: “Having faith gives one a goal in life” and “People are born again after death.” The respondents were asked to answer each item on a 5-point scale (1: I do not agree with it at all; 5: I strongly agree with it) under the instructional statement, “*How much do you agree with the following?*”

**(b)Image of Muslims among the Japanese:** eleven items were created from the most common categories of preliminary survey results. Four items were added from the scale of positive image toward Muslims using Kondo and Mukai (2017) because the results of the preliminary survey provided more negative images; finally, 15 items were used. The respondents were asked to answer each item on a 5-point scale (1: I do not agree with it at all; 5: I strongly agree with it) under the instructional statement, “*How much does your image of Muslims agree with the following statements ?*”

**(c)Receptive Attitude towards Muslims:** the social distance scale by Obara and Yamazaki (1991) was adapted for Muslims, and five items were used. For instance, “*a foreigner being a close friend of yours or your family*” was modified to “*a Muslim being a close friend of yours or your family.*” The respondents were asked to respond to these five items on a 5-point scale (1: I do not accept it at all; 5: I strongly accept it).

**(d)Psychological Variables:** since the previous study suggested that the following psychological variables were considered to influence acceptance attitudes, items to measure “curiosity” and “acceptance of others” were used. Regarding curiosity, six items were used from the diverse curiosity scale (Nishikawa & Amamiya, 2015), such as “*I like to try new things*” and “*I have a strong interest in everything.*” Regarding acceptance of others, four items were used from the “acceptance of others” scale (Fujimoto & Daibo, 2007), such as “*I respect others' opinions*” and “*I accept others' opinions as much as possible.*” The respondents were asked to answer each item on a 5-point scale (1: I do not agree with it at all; 5: I strongly agree with it) under the instructional statement, “*How much do you agree with the following?*”

**(e)Contact Experience with Muslims:** the respondents were asked about “the contact experience with Muslims” or “do you have any acquaintances who are Muslims?” They had

to answer on a four-point scale (1: I do not have any acquaintances who are Muslims; 4: I have Muslim friends with whom I can talk about anything.) If there were multiple responses, the highest number chosen was calculated as the score. The question was made such that the larger the number, the closer the participant was to their Muslim acquaintance.

**(f) Knowledge of Islam:** it was a free-description question, with the instructive statement, “Please list as many Islamic precepts as you can think of, below.” The number of responses was calculated as the knowledge score, regardless of whether the content the of responses was correct or not.

**(g) Demographics:** Demographic variables consisted of gender and age.

## Results

### 1. Creation of an Image Scale for Muslims

As a preliminary step in the analysis, a factor analysis (method of maximum likelihood, Promax rotation) was conducted on the image of Muslims found in the preliminary survey in order to measure the image of Muslims among Japanese students.

A factor loading of 0.40 was used as the cutoff for inclusion, and items loaded on multiple factors were eliminated.

The result of the factor analysis yielded a 12-item measure, with a three-factor solution as the most appropriate: “negative image,” “piety image” and “positive image.” The loadings of each item on the three factors are presented in Table 3. Factor I was labeled “*Negative image*” since it included items that expressed a negative image toward Muslims, such as “scary” and “extreme.” Cronbach’s alpha for this factor was  $\alpha = .79$ , satisfactory for an exploratory study. Factor II consisted of four items. This factor was labelled “Piety image” since it included items that expressed their piety, such as “zeal for faith” or “have a sense of well-being.” Cronbach’s alpha for this factor was  $\alpha = .78$ , satisfactory for an exploratory study. Factor III was labeled “*Positive image*” since it included items that expressed a positive image toward Muslims, such as “serious” or “pure.” Cronbach’s alpha for this factor was  $\alpha = .62$ , satisfactory for an exploratory study.

	<i>Factor</i>		
	I	II	III
<b><i>FI: "Negative image" (<math>\alpha = .79</math>)</i></b>			
Scary	<b>.81</b>	- .10	.11
Extreme	<b>.66</b>	.07	.07
Calm	- <b>.62</b>	- .12	.25
I do not know how to interact with them	<b>.61</b>	- .07	.12
Difficult to understand	<b>.59</b>	- .16	.05
Generous	- <b>.47</b>	- .22	.13
<b><i>FII: "Piety image" (<math>\alpha = .78</math>)</i></b>			
Zeal for faith	- .01	<b>.89</b>	- .05
Religious precepts are strict	.07	<b>.86</b>	.01
Traditional	- .04	<b>.58</b>	.17
Have a sense of well-being	- .13	<b>.34</b>	.25
<b><i>FIII: "Positive image" (<math>\alpha = .62</math>)</i></b>			
Serious	.02	.19	<b>.63</b>
Pure	.06	.01	<b>.62</b>
<b>Factor correlation</b>			
F I	-		
F II	.21	-	
F III	.09	.37	-

Table 3: Factor Analysis of Image of Muslims.

## 2. Reliability and Correlation Analysis of Each Variable

Before testing the hypothesized model, a reliability analysis was conducted to determine if each variable was valid for the analysis. Since the religiosity scale used in this study was a simplified version of the scale of religious attitude by Kaneko (1997), we first examined its reliability. A factor analysis (method of maximum likelihood, Promax rotation) was conducted. The results were based on the following three-factor structure, with a final total of 14 items, excluding items with factor loadings of less than 3.5. The factor names are adapted from Kaneko (1997). The names of each item (table 4).

	<i>Factor</i>		
	I	II	III
<b><i>FI: “Pro-religiousness” (<math>\alpha = .70</math>)</i></b>			
A life backed by faith is the true way of life for a person	<b>.85</b>	.05	- .13
A person without religion is poor at heart	<b>.59</b>	.06	- .13
Religion teaches the meaning of one’s existence	<b>.55</b>	- .09	.24
Faith gives you a goal in life	<b>.51</b>	- .03	.01
Religion is essential in maintaining the morality of society	<b>.36</b>	.14	.11
<b><i>FII: “Belief in Soul” (<math>\alpha = .76</math>)</i></b>			
I believe there is an afterlife	.02	<b>.80</b>	- .08
Even though people die, they are repeatedly reborn	- .01	<b>.75</b>	.01
If we do not make offerings to the dead, we will be haunted	.07	<b>.56</b>	.13
<b><i>FIII: “Belief in Guardianship” (<math>\alpha = .72</math>)</i></b>			
Sometimes I feel at home in the precincts of a shrine	- .05	- .16	<b>.76</b>
I feel a sense of familiarity toward Jizo	.02	.06	<b>.63</b>
I feel as if the spirits of nature reside in the mountains, rivers, grass, and trees	.00	.28	<b>.49</b>
I feel renewed when I see the sunrise	- .10	.23	<b>.44</b>
Religion is a good mental and physical discipline	.29	- .14	<b>.42</b>
We should have a memorial service for miscarried child	- .05	.14	<b>.35</b>
<b>Factor correlation</b>			
	F I	-	
	F II	.27	-
	F III	.45	.44

Table 4: Factor Analysis of the religiosity of Japanese students.

A correlation analysis was performed on the following 10 variables: negative image, piety image, positive image, receptive attitude towards Muslims, pro-religiousness, belief in soul, belief in guardianship, curiosity, acceptance of others and knowledge of Islam. Table 5 Reliability coefficient, descriptive statistics, and correlation coefficient for each variable. Cronbach’s alpha for “positive image,”  $\alpha = .62$ , was somewhat low. However, since the number of items was extremely small, it was judged to be acceptable and included in the analysis. According to other variables, Cronbach’s alpha for this factor was more than  $\alpha = .70$ , satisfactory for an exploratory study. The average “knowledge of Muslims” score was 1.75, indicating that Japanese university students know of at least two Islamic precepts. The most

common responses in the survey were “prohibition of drinking alcohol and eating pork” and “women should not show their skin to men other than their husbands.

Variables	$\alpha$	$M$	$SD$	1	2	3	4	5	6	7	8	9	10
1. Negative image	.79	3.22	.74										
2. Piety image	.78	4.21	.65	.24**									
3. Positive image	.62	3.46	.77	.13	.43**								
4. Receptive Attitude towards Muslims	.89	4.15	.87	-.48**	.07	.10							
5. Pro-religiousness	.70	2.24	.70	.05	.05	.19*	-.02						
6. Belief in Soul	.76	2.90	1.06	.12	.12	.16*	.00	.28**					
7. Belief in Guardianship	.72	3.21	.80	.20**	.20**	.21**	.22**	.39**	.41**				
8. Curiosity	.84	3.48	.81	.12	.12	.03	.15*	.20**	.08	.29**			
9. Acceptance of others	.78	4.09	.59	.15*	.15*	.14	.21**	.05	.25**	.24**	.36**		
10. Knowledge of Islam	-	1.75	1.57	.32**	.32**	.16*	.21**	.08	.01	.23**	.06	.06	

\*\* $p < .01$     \* $p < .05$

Table 5: Correlations between each question item (n=194).

### 3. The Possibility that the Presence or Absence of Contact with Muslims Influences Each Variable

An unpaired t-test was performed between contact experience and each variable. In the t-test, those who answered, “No, I do not have any Muslim acquaintances” to the question “Do you have any acquaintances who are Muslim” were categorized as “no contact experience” and those who answered otherwise were collectively categorized as “have contact experience” to the question. The results showed significant differences in “negative image” ( $t(192) = 5.81, p < .001$ ) and “receptive attitude ( $t(192) = 2.81, p < .01$ ). The more experienced, the lower the “negative image” and the higher the “receptive attitude”. Although an unpaired t-test was also conducted among the contact experience with foreign country and gender in the same procedure, neither variable was significantly different, and hence were excluded from subsequent analyses.

### Verification of the Hypothetical Model

Structural Equation Modelling (SEM) was used to test the hypothetical model shown in Figure 1. The model with the best fit was finally adopted as the “Receptive Attitude Model toward Muslims” (Figure 2). During the analysis, the psychological variables “curiosity” and “acceptance of others” were excluded because they showed no association with any of the variables. The results indicated that this structure fit the data well: CFI=.934, RMSEA=.059, it was determined that the values were acceptable.

The “negative image” and the “belief in guardianship” had a direct and significant influence on the receptive attitude toward Muslims. Specifically, “receptive attitude” was positively influenced (  $.22^{**}$  ) by the strength of “belief in guardianship” and negatively influenced (  $-.55^{**}$  ) by the “negative image.” In other words, those who have a sense of being protected by God and Buddha are more accepting of Muslims, while negative images hinder acceptance of Muslims. The other variables were found to have an indirect influence on receptive attitude through images and “belief in guardianship.” First, the positive images were significantly positively influenced by “religiosity” (  $.19^{**}$  ) and “piety image” (  $.50^{**}$  ). However, there was no significant relationship with receptive attitude. The negative image was not significantly related to religiosity, but was negatively influenced by “contact experience” (  $-.65^{**}$  ) and “knowledge of Muslim” (  $-.10^{**}$  ), and positively influenced by “piety image” (  $.31^{**}$  ).

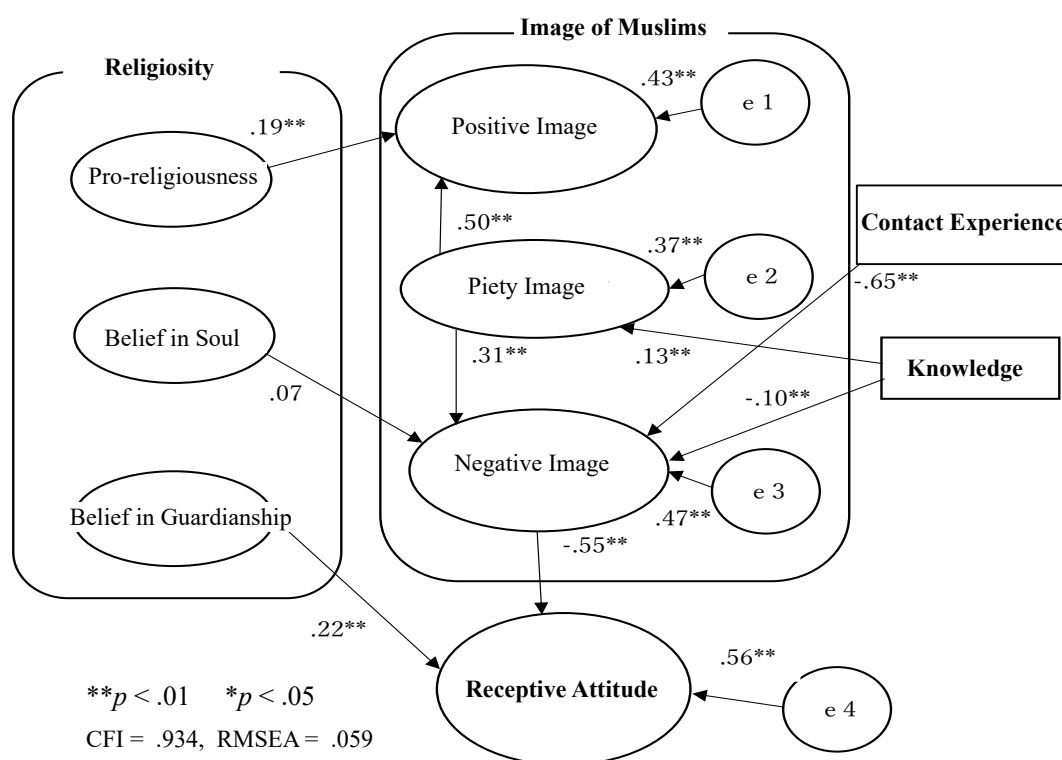


Figure 2: Path Diagram of Receptive Attitude toward Muslims.

*Notes: the arrows shown in the figure represent the association between each variable. It is assumed that there is a causal relationship between the variable from which the arrow extends and the variable toward which it points. The number attached to the arrow is the path coefficient; if this value is positive, there is a positive association; if it is negative, there is a negative association. The larger the absolute value of the path coefficient, the stronger the association between the variables. The significant associations are marked with an asterisk.*

## Discussion and Conclusion

### 1. The Relationship between Religiosity, Perceptions, and Attitudes toward Muslims among the Japanese

This study explored the factors that influence receptive attitude by incorporating the religiosity of the Japanese people in order to investigate what is needed to promote a receptive attitude toward Muslims. The results revealed that one aspect of Japanese religiosity and images influences receptive attitude toward Muslims. The fact that “belief in guardianship” was positively associated with receptive attitude indicates that Japanese attitude toward religion can be interpreted as a determinant of receptive attitude toward Muslims. “Belief in guardianship” is awareness that one's accomplishments, one's gains, and even one's very existence are due to an entity external to oneself, a supernatural being. Therefore, the existence of out-groups such as Muslims also may have been accepted as being the intention of God and Buddha. The results suggest that “belief in guardianship” is an important personal trait in encouraging a receptive attitude toward Muslims. According to Nishiwaki (2004), fewer than 10% of Japanese are actively involved in religion or join a specific religious group, but 50-70% of Japanese engage in customary religious activities, such as visiting graves, making New Year's pilgrimages, and participating in local festivals. In fact, in Japan, various religions are mixed together in events such as Christmas and *Obon*, a Buddhist event. Various religions are accepted and there may be an aspect of tolerance toward different religions.

Furthermore, the fact that religiosity was positively associated with positive images indicates that those who have positive attitudes toward religion also have positive images of Muslims. These findings indicate that religiosity affects Japanese perceptions and attitudes toward Muslims. The results suggest that although it is difficult to control an individual's attitude toward religion, an individual's religiosity can be a clue to understanding and interpreting receptive attitude toward Muslims.

### 2. The Relationship between Various Variables and Perceptions of and Attitudes toward Muslims

“Contact experience” and “knowledge” were negatively and significantly associated with “negative image.” This means that the less the contact with Muslims and the less the knowledge about Islam, the more likely the person is to have a negative image of Islam. This supports the “contact hypothesis” (Allport, 1950), which states that positive feelings toward unknown out-groups increase through more contact with the out-group. The t-test showed that those with more contact experience had lower values for “negative image” and higher values for “receptive attitude”, although “contact experience” and “knowledge” did not show any significantly relationship with “receptive attitude” in validation of the model. This can be interpreted as meaning that contact experience does not have the power to increase positive images, but it does have the effect of mitigating negative images. In other words, it cannot be said that the more positive the image, the more accepting the person is, but negative images are a hindrance to acceptance. In addition, there was a significant correlation between “knowledge” and “receptive attitude.” This follows an assertion of Arima (2015) that the amount of knowledge as well as direct contact experience with foreigners influences global awareness. “Negative image” was negatively associated with both “contact experience” and “knowledge,” and also showed a strong negative association with “receptive attitude.” This suggests that “contact experience” and “knowledge” may be indirectly related to “receptive

attitude” by mitigating negative images. Moreover, the results suggest that negative images are not necessarily related to individual religiosity, but come from experience and knowledge, and are particularly strongly influenced by contact experiences.

On the other hand, neither “curiosity” nor “acceptance of others” showed significant associations with image or receptive attitude. Curiosity and acceptance of others are generally believed to promote receptive attitude when communicating with others or foreigners (Nishikawa & Amamiya, 2015). For example, those who are more curious are better than others in accepting things (Kashdan, 2009). The results of this study imply that contact with Muslims is different from contact with out-groups in general. In other words, Muslims may not be treated as a normal out-group, but may be a special group of people in the eyes of the Japanese.

### **3. Image of Muslims**

The image of Muslims was summarized into three factors: “negative image,” “pious image,” and “positive image.” This indicates that Muslims have both positive and negative images for Japanese students in this study. The “negative image” was negatively associated with a receptive attitude toward Muslims. In other words, the more negative the image of Muslims, the lower the receptive attitude toward them. This finding agrees with Kondo and Mukai (2017), who found that the stronger perceived threat from Muslims leads to lower receptive attitude. Interestingly, “pious image” was positively associated with both “positive image” and “negative image.” In other words, the image of “Muslims are devout in their faith and devoutly follow the religious precepts” is assumed, and if this is taken in a positive way, it reinforces a positive image, such as “they are serious because they follow even strict precepts properly for the sake of their faith.” Conversely, if taken in a wrong way, it may lead to a negative image, such as “I am afraid that they might do something extreme for the sake of their faith.” The piety image reinforces both positive and negative images. In other words, it shows that positive impressions do not always make a Muslim acceptable. Furthermore, this study found that religiosity of Japanese is related to their image and receptive attitude toward Muslims. The Japanese perceive Muslims as an out-group, which may lead to a particular perception of Muslims as different from other foreigners, and this may lead to a peculiar Japanese attitude.

### **4. Suggestions for Promoting Receptive Attitude toward Muslims**

The results of this study will be used to determine what can be done to promote a more accepting attitude toward Muslims. First, increasing the contact experience with Muslims. The creation of opportunities for interaction with Muslims and contact experience are expected to reduce negative images of Muslims and promote a receptive attitude toward them.

Second, increasing correct knowledge about Islam can reduce negative images and mitigate inhibitions to acceptance. As for correct knowledge about Islam and Muslims in Japan, the Muslim Cultural Assimilator for Japanese (Nakano & Tanaka, 2018) and the brochure for understanding and accepting Muslim students and foreign Muslim tourists (International Education & Exchange Center, Nagoya University 2015; Bureau of Industrial and Labor Affairs, Tokyo Metropolitan Government, 2021) are good first steps or introductions. It has been found that obtaining correct knowledge of Muslims and essentials of socializing with them promotes willingness to interact with Muslims (Nakano et al., 2018), and it is suggested



that acquisition of knowledge may help to facilitate contact experiences with them. Furthermore, it is suggested that correct knowledge and awareness may positively change the pious image of Muslims. In fact, Nakano and Tanaka (2018, 2019) reported that the strict and pious image of Muslims changed to a flexible image through interaction with Muslims and quizzes. The piety image should not be negatively understood by increasing knowledge and contact experience through education and social outreach. It is difficult to control individual religiosity, but we can promote an attitude of acceptance toward Muslims by not regarding Islam or "religion" itself as something special, but by recalling the sense of being protected by God and Buddha that the Japanese people also have, and by respecting and empathizing with them.

## **5. A Challenge for Future Research**

It is important to conduct more precise surveys not only of students but also of Japanese people in general in the future. Since the subjects of this study were university students, it cannot be said that this study accurately represents the nature of Japanese people in general. The consistency between the actual contact situation and the attitude of acceptance through qualitative research, including participant observation needs to be confirmed. The present study did not determine how the image of Muslims, receptive attitude, and religiosity function in actual contact situations with Muslims. Further research is desirable.

Moreover, it is hoped that further refinement of the model will be explored in the future by adding variables that were not used in this study. The model used in this study is not the only model that can be considered. Since the coefficient of determination for receptive attitude was relatively low in this study, there is room to consider other explanatory variables.

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***A Case Study of Caregivers' Social Skills Use in Practice:  
Interviews and an Observation About Interactions With Care Recipients***

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**Abstract**

This research is a qualitative psychological study of caregivers. To gain knowledge about social skills caregivers use to form good interpersonal relationships with care recipients in nursing homes, we conducted survey (A); a preliminary interview, and survey (B); an observation and post-interview survey at a facility for disabled people. The informant had seven years of experience as a caregiver. First, we interviewed the informant about forming relationships with care recipients, then extracted and classified his social skills using the KJ method (Kawakita, 1967). The obtained 65 social skills were classified into five categories: "communication and information transfer", "forming and maintaining relationships", "manner and attitude", "trouble dealing and prevention", and "general tasks". In the second phase, the observation and post-interview records were combined. Again, the KJ method extracted and classified social skills and situations. The 209 social skills obtained were classified into five categories as in the preliminary interview survey. Skills of "forming and maintaining relationships" were in the majority throughout the surveys. In contrast, skills classified as "general tasks", were the least used in the first survey and were second most used in the post-interview phase. In this study, we learned how to apply social skills to form good interpersonal relationships. Moreover, the observational study suggested the importance of working with the people and environment around the caregiver and the direct productive relationship. This information could not be captured by the interview survey alone.

Keywords: Caregiver, Social Skills, Observational Study

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## Introduction

Japan is the most super-aged society in the world. According to the Cabinet Office, the aging rate in Japan is 28.8%, and its older adult population is expected to peak by 2042 (Cabinet Office, 2021). This has resulted in declining birth rates and an increase in the number of nuclear families; caregivers have become increasingly important in the Japanese society. Hence, there is an inclination toward improving the quality of nursing care services in Japan (National Association of Health Care Facilities for the Elderly, 2019).

Caregivers' duties vary widely in Japan (see Table 1). In 2015, 506,000 people with disabilities were living in support facilities (Ministry of Health, Labour and Welfare, 2020). Japanese support facilities for persons with disabilities have been established to provide nursing care, consultations, and advice, among other necessary forms of daily life support for individuals residing in these facilities. Caregivers are pertinent to the Comprehensive Support for Persons with Disabilities Act, which was enacted in 2013 to realize a regional society where citizens can live with peace of mind, respecting each other's personality and individuality regardless of their disability (Ministry of Health, Labour and Welfare, 2012).

Work that is independent of the type of work facility	Work required in residential facilities	Service users
Assistance with eating and drinking Transportation of service users Recreational activities Exercise instruction Assistance with bathroom-related activities.	Maintaining patient's environment, namely through: - Cleaning and making patients' beds - Replenishing patients' favorite foods	Elderly people People and children with: - Physical disabilities - Mental disabilities - Intellectual disabilities

Table 1. Caregiver Duties and Service Users in Japan

In contrast to other service industries such as sales, nursing care focuses on building long-term relationships nurtured throughout daily life, as opposed to once-off relationships. The users of support facilities for persons with disabilities have varying ages and disabilities, including physical, intellectual, and mental disabilities. Therefore, caregivers need to be able to respond flexibly to the individual requirements of the service users. Thus, caregivers' ability to establish smooth interpersonal relationships with service users is distinct from ordinary relationship building. Therefore, it can be inferred that caregivers need to be sufficiently flexible to build relationships with a wide range of patients according to the situation at any given time. Social skills encompass both verbal and nonverbal behaviors used to respond appropriately and effectively in interpersonal situations as well as the cognitive processes that enable the expression of these behaviors (Aikawa, 1996). In this study, social skills refer to the interpersonal behaviors and cognitive processes that enable caregivers, who are interpersonal assistance workers, to develop interpersonal relationships with users through verbal and nonverbal behavior to provide efficient long-term care for users. The author searched J-STAGE for previous studies written in Japanese on "social skills" in the nursing care field. This search found reports that broaden the concept of caregivers'

communication skills, indicating the implications of cognitive-behavioral skills on the development of interpersonal relationships (Yamada & Nishida, 2007). However, no prior reports were found that focused primarily on the social skills of Japanese caregivers. The importance of developing interpersonal relationship skills among caregivers is underscored in a unit on communication in the national training school for caregivers (Japan Association of Care Worker Training Institutions, 2019). Furthermore, caregiver turnover has been largely attributed to interpersonal relationships over the past several years (Center for the Stabilization of Long-Term Care Work, 2021). Hence, a more sophisticated interpersonal learning method is required.

This study aimed to gain insights into the social skills related to the development of interpersonal relationships and their applicability to experienced caregivers working in the field. This study used interview surveys to identify the social skills of caregivers. Thereafter, an observational study was conducted in a support facility for persons with disabilities to collect information on the use of such skills, namely through tone of voice, gestures, eye contact, conversation pauses, positioning, and verbal exchanges. Furthermore, cognitive information related to the development of interpersonal relationships with patients was collected from the caregivers through a post-interview survey. Thus, this study combined this information to gain diverse insights into effective social skills that function efficiently in the context of care site.

## Method

The participants of this study comprised caregivers working at a support facility for persons with disabilities with a capacity of 50 residents. The attributes of the research collaborators are presented in Table 2. These observations were recorded using the behavioral descriptive method. Furthermore, interactions with facility users at the support facility for persons with disabilities were recorded as verbatim as possible.

Age	Gender	Years of experience	Qualifications
21~30	Male	7 years	Certified care worker Senior kindergarten teacher Nursery teacher

Table 2. Attributes Of Research Collaborators

The support facility for persons with disabilities was selected as the research subject because it is a residential facility. Furthermore, long-term perspectives on the development of interpersonal relationships with facility users could be confirmed. As opposed to long-term care welfare facilities for older adults, which are also residential facilities, support facilities for persons with disabilities have users with diverse demographics, including young people and people with disabilities; thus, a wide range of interactions can be expected. Moreover, setting up the environment for observation was advantageous since the activities were conducted mainly within the facility.

### Survey (A): Interview survey

A three-hour semi-structured interview was conducted with the research collaborators. The interview guide was revised according to the caregiver's work content (see Table 3) (Yokoyama & Tanaka, 2007) .

### Survey (B): Observational study and post-interview survey

The author made direct observations of the interaction between the caregiver and the service users via non-participant observation. Thus, the author did not participate in the behavior of the observation target. Thereafter, a 4-hour observation was conducted. Furthermore, 1-2 months after the observational study, three 2-hour semi-structured interviews were conducted on a rescheduled schedule. In the post-interview survey, the intentions and reasons behind the observed actions were investigated. The questions were presented to the collaborators before the post-interview.

Contents of the prepared questions
<ul style="list-style-type: none"> <li>• Is there anything you are careful about when interacting with users?</li> <li>• Are there any ways to treat users that please others?</li> <li>• What are you doing to build a good relationship with your users as a caregiver?</li> <li>• Please tell us of an instance you had a good relationship when you did it like this.</li> <li>• Please tell us what you are careful about when you meet the user for the first time.</li> <li>• Please tell us what you do to build trust with the user when you meet for the first time.</li> <li>• What kind of information does the user provide that is needed to be involved as a caregiver?</li> <li>• How do you obtain that information?</li> <li>• Among the various users, have you ever experienced long-term care that required special consideration? Please share the instance(s) with us.</li> <li>• Please tell us what you do to communicate effectively with the users.</li> <li>• Have you ever found it difficult to communicate with users? Please share the instance(s) with us.</li> </ul>



- Have you ever had a misunderstanding with a user? Please share the instance(s) with us.
- When you were a newcomer, did you have any difficulties or problems in supporting and interacting with users? Please share the instance(s) with us.
- When you were a newcomer, did you have any seniors you could respect as a caregiver?
- What do you think about the support and involvement of a new caregiver with users in the workplace?
- What advice would you give a new caregiver?
- Have you ever had any issues with the user during the support or interaction? How did you deal with that situation?
- Do you feel uncomfortable or frustrated while working as a caregiver?
- Are there any requests from caregivers to users?
- What is your goal for an ideal caregiver in the future?

Table 3. Interview Guide

### Analytical method

From the interview, observation, and post-interview records, the cognition and behavior applied by caregivers related to developing relationships were identified as social skills. The KJ method was used to classify the extracted social skills (Kawakita, 1967). Thus, the identified social skills were converted into cards and classified simultaneously while creating a group that summarized similar concepts. Thereafter, these were abstracted by attaching a nameplate that expresses the contents of each group.

### Selection of research collaborators and ethical considerations

The research collaborators were recruited using the neopotism method. Specifically, the managers of support facilities were requested to recommend caregivers who have been working at the facility for at least five years and who had established effective interpersonal relationships with users. Written informed consent was obtained from all research collaborators prior to the study, during which the researcher explained the content and ethical considerations of the research both orally and in writing. Furthermore, before the commencement of the observational study, the authors reiterated the purpose of the study to the research collaborators. The explanation and submission of the consent forms to the patients in contact with the caregivers occurred in line with the judgment and instructions of the director of the facility. Due to patients' right to privacy, no records were retained and no observers accompanied the patients in their daily duties, such as bathroom-related activities.

## Results

**The results of this study were analyzed using the KJ Method.**

### Survey (A): Interview Survey

Sixty-five social skills were extracted from the narratives of Survey (A). Table 4 shows the results of the analysis using the KJ method.

Major category	Number of SS	Middle Category <sup>□</sup>	Description	Examples of Social Skills
Forming and maintaining relationships	21	“Checking the care recipient’s level of understanding (1),” “Timing of the talk/greeting (1),” “Topics and contents of conversation (4),” “Creating a good atmosphere (1),” “Understanding the care recipient’s true feelings (3),” “Gathering information (5),” “Building a trustworthy relationship (2),” “Sense of distance (3),” “Respect for the caregiver’s thinking (1)”	This category consists of SS that builds relationships through chatting, SS that maintains relationships that have already been established, etc. This category differs from 【Communication/Information Transmission】 in that it does not focus on the accuracy of the information exchanged but is characterized by the fact that the interaction is focused on providing comfort as people sharing the same space.	“Talking about the care recipient’s hobbies and other topics that center on the caregiver (D-54),” “Checking the patient’s physical condition while making small talk (D-260),” “Tell jokes (D-45),” “Repeatedly ask the care recipient until he or she is able to express his or her needs without hesitation (D-67)”

Manner and attitude	20	<p>“Attitude and preparedness (2),”</p> <p>“Don’t make anger the care recipient. (1),”</p> <p>“Treat care recipient fairly (1),” “Don't get too involved (2),”</p> <p>“Positional relationships (3),”</p> <p>“Motivating care recipient (6),”</p> <p>“Lowering the psychological hurdles of care recipients (5)”</p>	<p>This classification consists of SS related to basic care attitude such as "respect for the care recipient" and SS derived from it.</p> <p>Derived SS can be mentioned below SS to have the care recipient lead a better life, and SS for smooth care, etc.</p>	<p>"Do not sit directly in front of care recipient (D-247),“ "Converting negative content into positive proposals (D-31),“ "Propose to have an image of what will happen if it succeeds (D-33),“</p> <p>"Compliment when care recipient gets close to he or her goal (even if it's trivial). (D-42’),”</p> <p>"(Lower himself) make it easier for the care recipient to make him a request (D-74')"</p>
Communication and information transfer	14	<p>“Understanding the care recipient's intentions (7),”</p> <p>“Accommodating the care recipient 's needs (5),” “Avoiding misunderstandings (1)”</p>	<p>This classification consists of SS groups for correctly communicating the caregiver’s intentions and SS groups for correctly capturing the care recipient's intentions. In contrast to [Forming and maintaining relationships] which is focused on chatting, the focus of this category is the exchange of information accuracy, such as business</p>	<p>"Ask questions again for confirmation (D-144),“</p> <p>"Ask in the form of a question like “Do you mean ○○?” instead of just asking back (D-169, 169’),” "Control the conversation speed of the care recipients by speaking slowly (D-153),“ "Give the point by short sentences (for people with higher brain dysfunction) (D-175),“</p> <p>"Conversation with</p>

			communication.	gestures (D-147)"
Trouble dealing and prevention	9	"Early detection of the seeds of trouble (2)," "Responding to trouble (7)"	This classification consists of SS for preventing problems and SS for when problems occur.	"Do not force people who dislike each other to stick together (D-206)," "When arbitrating, set up a place for discussion while listening to the opinions of both care recipients (D-209)," "Change the day, don't chase deeply, (D-129')," "Do not deny the feelings of the care recipients (D-202)"
General works	1	Management (1)	Classification consisting of SS not included in the above four major categories.	"Determine the order of actions considering the burden on the care recipient (D-229)"

Table 4. Interview Survey Analysis Results Using the KJ Method

## Survey (B): Observational Study and post Interview survey

### Observations from caregiving contexts

A total of 64 observation scenes were obtained from the observational studies. The observed scenes were analyzed using the KJ method and classified into 11 major and 27 medium categories (see Table 5). The major categories, namely, "Communication from the long-term care recipient," "Communication with the long-term care recipient," and "Support for long-term care" comprised ten observation scenes. The major category "Communication from the long-term care recipient" consists of five subcategories. Furthermore, "Communication with the long-term care recipient" consists of six subcategories, while "Support for long-term care" consists of four subcategories of care.

Tables 6 and 7 show the views of the caregivers on caregiving expressed in the post-interviews and the caregivers' narratives obtained in the post-interviews, respectively. The identified social skills were based on the external behaviors and views on caregiving that were considered useful for the development of effective interpersonal relationships with users.

Major classification	Middle classification
Communication from the long-term care recipient	Daily conversation (4), Information provision (2), Hope for assistance / assistance (2), Voice during another work (1), Education for long-term care (1)
Communication to the long-term care recipient	Daily conversation (1), Confirmation to the long-term care recipient (3), Providing food and drink (2), Understanding trends of long-term care recipients (2), Work instructions (1), Understanding the work status (1)
Support for long-term care	Help with work (3), Confirmation of results (1), Education for long-term care (4), Guidance of long-term care (2)
Meal assistance	Meal assistance (1), Trouble prevention (2), Education for long-term care (1)
Responding to long-term care requests	Normal business (3), Education for long-term care (1)
Support for new long-term care recipients	Support for new long-term care (3)
Care recipient physical condition management	Physical condition management (2)
Environmental arrangement	Environmental maintenance (1)
Normal business	Work proposal / grasp (2), Providing food and drink (2)
Trouble prevention	Trouble prevention (3)
Apology to the care recipient	Apology (1)

Table 5. Caregiving Situations Based on the Observational Study

<p>(1) Caregiver: (looking at the care recipient who is coloring while working at a slight distance)</p> <p>(2) Caregiver: "Mr. ○○, how is it? (Walk up to the care recipient)"</p> <p>(3) Care recipient: "Yes, yes."</p> <p>(4) Caregiver: "I do not understand with "yes, yes, yes" - ha ha ha."</p> <p>(5) Caregiver: (looking at the picture to the user and giving some advice on the picture)</p>
<p>Caregiver's narrative for this episode (during the post-interview survey )</p> <p>"I think I gave her some advice about the use of color..." "How about adding this color?" I think I probably gave her some advice on the use of color. I think I gave her some advice on how to use colors. (omission) A different perspective. If you give them a different stimulus, you might get a different result. (We do not know what the users are capable of, so we thought we would give it a try."</p>
<p>Corresponding social skills</p> <p>Survey A</p> <p>[No relevant social skills]</p> <p>Survey B</p> <p>Provide different stimuli and perspectives to the user during the work.</p> <p>Let them try what they can do.</p>

Table 6. Episode Introduction 1: Interaction during Recreation (Coloring)

<p>(1) Caregiver: "Mr. ○○. You would not say this is dinner, would you?"</p> <p>(2) Care recipient: "Yes."</p> <p>(3) Caregiver: "It is not "yes"- what are you saying - you're scaring me - hahaha. It doesn't sound slightly like a joke, so let us stop."</p> <p>(4) Caregiver: "Yes, okay~ (brings the empty pudding container in front of the care recipient and shows it to them)."</p> <p>(5) Care recipient: "Thank you very much~"</p> <p>(6) Caregiver: "In that case, please treat me to pudding a la mode next time. Hahahaha."</p>
<p>Caregiver's narrative for this episode (during the post-interview survey )</p>

"First of all, I would like her to eat a little more in terms of her physical condition. The other thing is her...communication with her, right? (If we can talk about food and other things regularly, even if it is just a little bit at a time, I wonder if she will eat when it's really important. That's the point."

"Ah, that is the end of the story, isn't it? (omission) I did not have an ending to my story. It was the end of the story. (In my case, before I start talking, I usually think about how much I want to talk with this person. (omission) I believe that we have to treat all users equally."

#### Corresponding social skills

##### Survey A

Tell a joke

Explain the situation and respect the caregiver's risk-taking

##### Survey B

If the caregiver is worried about the care recipient's health condition due to small or picky eating, joke with them.

If the care recipient is reluctant to accept attention from staff, casually bring up the topic in your daily communication.

When starting a conversation with a care recipient, set an approximate time for the conversation in "MY" mind before the conversation.

Table 7. Episode Introduction 2: Interaction During Meal Assistance

In Survey (B), 209 social skills were identified. Table 8 presents the results obtained using the KJ method. Surveys 1 and 2 showed a high proportion of social skills, directly and indirectly, related to developing a relationship with users, such as "Relationship formation/maintenance" and "Manner/attitude." However, differences were noted depending on the survey method used. For example, skills classified as "Normal work," were the least common in Survey (A); however, they were the second most frequent in Survey (B). In addition to direct involvement with the user through time allocation and environmental maintenance, "Normal work" also includes working with the people around the user and the environment.

Communication / information transmission	Relationship formation/maintenance	Manner / attitude	Trouble dealing / prevention	Normal work	Total
32 (15.3%)	75 (35.9%)	27 (12.9%)	30 (14.4%)	45 (21.5%)	209

Table 8. Results of Analysis Using the KJ Method of Extracted SS at the Time of the Observational Study, Reflecting the Narratives from The Post-Interview

## Discussion

Survey (A) comprised a "preliminary interview survey" while Survey (B) comprised an "observation at the nursing home" and "post-interview survey." Both surveys shared a large ratio of social skills directly related to developing relationships with users, such as "Relationship Formation and Maintenance" and "Manner/attitude." "Normal work" was used the least in Survey (A), but the second most in Survey (B), reflecting the difference between the two survey methods. The interview survey can only elicit social skills that are recognized by the caregivers based on recall from the questions, while the observation method can elicit the social skills expressed by the caregivers, regardless of their own perceptions. However, the observational method is limited because it can only identify social skills within the observed situation, thus making the two survey methods complementary. "Normal work" comprised working with users, the people around them, and the environment, namely through time allocation and environmental maintenance. While these social skills may not affect users directly, they are considered important from the perspective of the users' living environment. Furthermore, is believed that developing indirect relationship skills is recommended based on observing operational contexts and documented operational methods. Thus, applying the appropriate social skills in any given context is important. This study is significant because it documented the operationalization of these skills, including the indirect skills.

Research has shown that developing good interpersonal relationships with users is strongly correlated with caregivers' sense of competence (Soh, Okada & Sirasawa, 2007). Thus, the self-evaluation of their ability to cope with given tasks can lead to a more proactive approach toward providing higher-quality care services. The author made daily observations on how the research collaborators communicated and formed relationships with users. The good interpersonal relationships formed in this way can facilitate a more accurate understanding of the thoughts and needs of the users (Soh, Okada & Sirasawa, 2007). Furthermore, it is assumed that these interactions form the foundation of fulfilling care work. The social skills required to develop good interpersonal relationships clarified in this study can be developed and applied to general learning. This can enhance active engagement among caregiving students and newly hired caregivers to facilitate the provision of high-quality caregiving services.

This study had several limitations. Namely, the observations were conducted using a limited number of caregivers, in a limited facility, over a limited amount of time. Furthermore, the time for later interviews was limited, thus not all behaviors were discussed. It is necessary to conduct further, in-depth research to investigate the use of social skills and to expand current knowledge on the influence of psychological aspects on social skills among caregivers. Thus,



it is important to conduct further research that extends to other caregivers and facilities to examine the generalizability of the findings.

## **Conclusion**

Survey (A) comprised a "preliminary interview survey" while Survey (B) comprised an "observation at the nursing home" and "post-interview survey." Both surveys shared a large ratio of social skills directly related to developing relationships with users, such as "Relationship Formation and Maintenance" and "Manner/attitude." "Normal work" was used the least in Survey (A), but the second most in Survey (B), reflecting the difference between the two survey methods. The interview survey can only elicit social skills that are recognized by the caregivers based on recall from the questions, while the observation method can elicit the social skills expressed by the caregivers, regardless of their own perceptions. However, the observational method is limited because it can only identify social skills within the observed situation, thus making the two survey methods complementary. "Normal work" comprised working with users, the people around them, and the environment, namely through time allocation and environmental maintenance. While these social skills may not affect users directly, they are considered important from the perspective of the users' living environment. Furthermore, is believed that developing indirect relationship skills is recommended based on observing operational contexts and documented operational methods. Thus, applying the appropriate social skills in any given context is important. This study is significant because it documented the operationalization of these skills, including the indirect skills.

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***Will the Bow-Pulling Model Be Repeated?***  
***– Analysis of Cases of Reverse Culture Shock During Two Overseas Stays***

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**Abstract**

The bow-pulling model assumes selective adaptation of culture, and assumes a reactionary psychological reaction that causes reverse culture shock after returning to Japan if it becomes familiar with the culture of the destination. In this study, we conducted an interview survey of two Japanese female college students who stayed abroad twice for study abroad or internship. We examined case-by-case whether the pattern of reverse culture shock after returning to Japan corresponds to the bow-pulling model and whether it is repeated as a stable characteristic. It was confirmed that a psychological burden occurred when some discontinuity occurred in culture and life and the person's response was unsuccessful. Initially, both participants corresponded to the bow-pulling model, but the second time they reacted differently. Informant P showed reverse culture shock and was interpreted as an alienation model that did not find peace in either culture, and Informant Q was interpreted as a bird's-eye view model that had a light reverse culture shock and objectively viewed both cultures. Reverse culture shock is caused by the interaction of internal factors such as dissonance of cultural values, with external factors such as lifestyle preferences and evaluation of the external environment, and is a negative view of the mother culture which is believed to strengthen the degree of shock. Hypothesis-generating research using qualitative psychology techniques, which interprets the process of reverse culture shock, is in the beginning stages, and it will likely be verified by studying a number of cases.

**Keywords:** Bow-Pulling Model, Reverse Culture Shock, Japanese Students, Cultural Acceptance, Second Stay in an Overseas Country

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## Introduction

Reverse culture shock refers to the psychological confusion felt after returning to your home country, as opposed to culture shock which occurs during a stay in a different cultural country. Let us consider a case where an international student studied abroad alone. When moving, they will prepare for language inconvenience, cultural incomprehension, and the absence of friends and family, and expect to experience a culture shock. However, when they return to their home country, language is understandable, culture is supposed to be familiar, and they are reunited with friends and family. Therefore, it is hard to intuitively understand why coming back causes shock. It is difficult for the person and surrounding people to predict the shock of returnees and to understand what happened, before they can address these problems. The reality is that time has passed between departure and returning home. The people and environment have changed and thus, they face discontinuities. Since their perception of self is continuous, they hardly notice their change. It is difficult to predict the transformation of others who lived in another country. Thus, these psychological properties make the shock invisible.

This psychological phenomenon has been known for a long time. The U-curve hypothesis and the W-curve hypothesis are well-recorded (Gullahorn & Gullahorn, 1963). U-curve depicts culture shock as a U-shaped change of emotion. The W-curve hypothesis has one more drop after returning to the original country, which reflects reverse culture shock. It has been confirmed that reverse culture shock occurs when Japanese students study abroad even for only one year (Takahama & Tanaka, 2011). They missed their study abroad destination and wanted to return after going home. They felt that the original environment is unsatisfactory, uncomfortable, and unstimulating. They felt emptiness and dissatisfaction. They felt lonely because they didn't have a place that was comfortable where they could stay. This feeling gradually starts to dissipate, but the pain may be great and prolonged. Some universities with a lot of experience in study abroad exchange programs provide commentary on reverse culture shock on their website as part of their information provision, such as Hokkaido University (2021), the Evergreen State College (2021), and the McGill International Student Service (2021). They are intended to prepare the students' minds before returning home and to support prompt re-adaptation.

Although it is a well-known phenomenon in some educational fields, it has been pointed out that research into reverse culture shock is less than the culture shock itself at the first transfer (Szkudlarek, 2010). In Japan too, such research is overwhelmingly small (Takahama & Tanaka, in press). At the offset, fact-finding and empirical research are required to understand the phenomenon. However, research is still lacking in the next step which investigates the psychological mechanism of its occurrence. In response to this unsolved question, this study focuses on the concept and attempts to decipher it. This is the idea behind the bow-pulling model (Akashi & Tanaka, 2005).

The bow-pulling model interprets why culture shock occurs, by linking the culture shock at the destination to the culture shock after returning home. In other words, if you are familiar with your new environment, it will be difficult to readjust to your home environment after returning. From the perspective of the heart, it is a metaphor for the power that causes the arrow to fly far, if you pull the bow strongly. However, another interpretation might be available. If you could adapt well to a new environment with a different culture, you might be able to quickly re-adapt to your culture, because you could exert the same flexibility again. Which interpretation is true? As a result of the verification attempt, corresponding examples

of the bow-pulling model were found, so it can be said that the model was verified (Akashi & Tanaka, 2005; Tanaka, 2021). However, other types have also been found. Although some people were familiar with their destinations, after returning to Japan, they did not stick to the continuation of the destination culture they accepted. They did not deny or dislike their mother culture. They were supposed to be a type that objectively accepted both cultures. This was named the bird's-eye view model. It can be said that it is an opposing model to the bow-pulling model. In addition, some people displayed a different experience. They had a strong tendency to maintain their home culture, and their acceptance of different cultures was limited. In this type, re-adaptation was rapid and reverse culture shock was inconspicuous. It was named the maintenance model, due to them maintaining their original culture even when abroad. These findings provided clues to the psychological mechanism of how and why reverse culture shock occurs. Next, the following question arises. Will the same pattern be repeated if one moves abroad again? If reverse culture shock is due to a person's nature or characteristics, the same person may repeat the same reaction. No matter where you go or how many times you go, is the response fixed? The answers to these questions will offer further clues about the mechanism of reverse culture shock.

In this study, the research question is whether the occurrence pattern of reverse culture shock represented by the bow-pulling model is repeated. Specifically, the cases of individuals moving overseas twice were focused on, and it explored the occurrence of reverse culture shock during the first and second time.

## **Method**

### ***Research participants***

Two Japanese undergraduate female students studying Humanities participated in this research. They stayed abroad for more than half a year and returned home twice. Ms. P was 21 years old. The first time abroad, she studied at a university in North America for a ten-month exchange program. The second time, she participated in an internship at a company in North America for six months. At the time of this survey, fifteen months had passed since her first return and two months had passed since her second return. Ms. Q was 23 years old. Her first time abroad, she went to a high school in Oceania for thirteen months for a privately funded study abroad program. The second time, she studied at a university in Europe for a ten-month study abroad exchange program. At the time of the survey, sixty-six months had passed since her first return and seventeen months had passed since her second return.

### ***Procedure***

Those who had studied abroad were called to cooperate in this research, and those who consented to participate were included. As an ethical consideration, the researcher explained the purpose of this research and the way their data would be handled, and promised the protection of their privacy and the freedom to withdraw without any disadvantage. A semi-structured interview was conducted for about one to two hours at a convenient time for the participants and was recorded and transcribed with permission.

### ***Guidelines***

Depending on the questions by Tanaka (2021) and Takahama & Tanaka (2011), we asked the following questions about the difficulties associated with the environmental transition between Japan and the destination.

**<Before studying abroad>**

1) The opportunity to study abroad (Why did you decide to study abroad? Why did you decide to study abroad in the relevant country?), 2) Feelings before studying abroad (What did you think about your life while studying abroad? Did you have any anxiety about your life while studying abroad?).

**<While studying abroad>**

1) Life at the study abroad destination (school life, daily life); 2) Relationships at the study abroad destination (closest person, friends, teachers, Japanese people, other international students, Japanese friends and family in Japan); 3) Cultural differences between the two countries (differences and surprises about local customs/culture/lifestyle, feelings and thinking about different cultures, local customs and cultural behaviors adopted during study abroad); 4) Mental health during study abroad (changes in emotions, problems and coping strategies, stress and how to relieve it); 5) At what point did you become accustomed to your life while studying abroad (time, opportunity)?

**<After returning to Japan>**

1) Life after returning to Japan (school life, daily life); 2) Relationships after returning to Japan (Japanese friends in Japan, closest people and local friends during study abroad); 3) Perceived differences between the two countries after returning to Japan (what they felt in terms of their Japanese life after returning to Japan, the difference in Japan compared to the destination, the customs and cultural behaviors they adopted during their study abroad, experiences/discomfort/surprises in Japan, depression/emptiness/anxiety after returning to Japan); 4) Mental health after returning to Japan (feelings immediately after returning to Japan, changes in feelings on the returning day and until the present, the way to deal with the problem after returning to Japan); 5) When did you get used to your original life in Japan (time, opportunity); 6) How much do you think you had adopted the local culture/values/ways of thinking?

**<Summary>**

Reminiscing on the whole study abroad experience (thoughts about the country where you stayed for studying abroad, your changes due to studying abroad, what you learned from studying abroad).

**Analysis**

We organized the contents using the KJ method (Kawakita, 1967), divided data into the first and second stay, summarized the situation before/during/after returning to Japan, and examined the process and factors leading to reverse culture shock.

**Result**

The outline and features of the narrative are shown below. To ensure privacy, details, nouns, and information that lead to personal information were hidden. The following descriptions were underlined depending on whether they were focusing on re-adaptation and negative evaluation of Japanese culture; 1) acceptance of different cultures during their stay, and maintenance of different cultural behaviors in Japan, 2) non-acceptance of different cultures during their stay, maintenance of Japanese culture during their stay, and suppression of different cultural behaviors in Japan, 3) switching of cultural behaviors in Japan, 4) re-adaptation after returning to Japan, 5) and negative evaluation of Japanese culture.



**Ms. P's first time (P1)**

I longed for fluent English. After three months, I was able to afford it, and I wanted to do something new, so I worked hard to make friends<sup>1)</sup>. I actively participated in events<sup>1)</sup> to engage with people from various countries. I made friends from Asian countries<sup>1)</sup> who shared a common position as international students. The locals and other international students were fluent in English. They had interesting conversations, but just listening to them made me lose confidence<sup>2)</sup>. One of my friends noticed and told me that I could do it in my way. Then the lack of my confidence reduced. When I became more comfortable, I felt like speaking more, and I started to speak up more than before. The class was active, but I didn't say a lot<sup>2)</sup>. Public remarks were embarrassing, and I often left my questions to teachers until after the class<sup>2)</sup>. Even though I was in the new country, I thought I kept my Japaneseness<sup>2)</sup>. Multinational people were doing what they wanted to do freely, without worrying about others' views. It was good that there was no insidiousness to say what they thought<sup>1)</sup>. A casual greeting was also preferable<sup>1)</sup>. Before returning to Japan, I cried because I didn't want to go home and counted the number of days left.

After returning to Japan, my loneliness increased and it was painful<sup>4)</sup>. The feeling of missing the country where I stayed didn't disappear for a long time<sup>4)</sup>. I lost interest in the trendy stories in Japan and I met fewer of my previous friends<sup>1)</sup>. In order to do what I wanted, I gradually declined their invitations<sup>1)</sup>. Japanese people do not say what they think, don't say hello, and don't answer the teacher's questions<sup>5)</sup>. I wondered if that was okay. I was frustrated because I felt that they should do what they wanted to do, and should adopt a clearer attitude<sup>5)</sup>. I learned how to ask questions and how to behave differently<sup>1)</sup> at my study abroad destination. I wished I could say hello more. However, the resistance to the Japanese way<sup>5)</sup> continued for about a week. I changed my mindset and made efforts toward my next goal, an internship. While studying abroad, I enjoyed my life for three months<sup>1)</sup> after getting used to the life there.

Features of P1: She interacted with multinational people, incorporated different cultures within a reasonable range for her, and was conscious of preserving Japanese culture. She liked the self-selective freedom of the culture, became familiar with it, and liked the local life. Although there was a relatively short period of reverse culture shock, she rebuilt herself with a new goal of staying in a foreign country again. A certain degree of the bow-pulling model was recognized.

**Ms. P's second time (P2)**

Unlike studying abroad, the people around me were easygoing. My expectations were not met. However, I changed my mind. I started to think and move for myself<sup>1)</sup>. I realized the sense of the value of being free even when people worked in their culture<sup>1)</sup>. I felt familiar and calm when I came in contact with anything Japanese things. However, with regard to interpersonal services, Japanese-style hospitality required working hard under the direction, and I felt sorry for them<sup>5)</sup>. I wanted to gain more knowledge and ability as well as improve my English. I wanted to be recognized as the person who had such ability.

After returning, living in Japan was not interesting<sup>5)</sup>. The place I stayed was inspiring and it was a lot of fun to know what I didn't know<sup>1)</sup>. I tried to get a part-time job, but it was a kind of form-only work and I felt it was impossible for me to continue it<sup>5)</sup>. I quit the job. I didn't want to stay in one place. I wanted to leave Japan again soon<sup>4)</sup>.

Features of P2: The internship was disappointing, despite her expectations. Although it was not a very comfortable life at the beginning, she gradually enjoyed experiences by utilizing her freedom. After returning to Japan, the environment without freedom and stimulation was unsatisfactory and restless. She couldn't settle in either culture, and her situation looked different from the three existing models.

### ***Ms. Q's first time (Q1)***

At the beginning of my stay, I was lonely. I was frustrated that I couldn't do what I wanted to. I didn't like their way of washing the dishes poorly, so I wiped them by myself after their washing<sup>2)</sup>. However, gradually I started to think it was okay and accepted it<sup>1)</sup>. Then, I stopped using the Japanese style. I was able to get myself in a good group of friends, and we did everything together as much as possible<sup>1)</sup>. I was surprised to find that they spoke up clearly about what they didn't understand. I got the way of frankly speaking up like other students<sup>1)</sup>. I often asked questions. I thought such a style suits my temperament. I also incorporated their tendency where they could easily decide on anything<sup>1)</sup>. Although The fulfillment of the appointment was uncertain, I thought that they cherished each moment. In the class, it was good to learn the subject depending on own choice lively and happily. I was happy to be asked where I came from<sup>1)</sup>. It was different from Japan in that they accepted me<sup>1)</sup>, a stranger, and wanted to know if we had something in common. Most of the exchange partners were local people, and there was no particular opportunity for international students to meet each other. I didn't want to go back to Japan. I felt that the people who stayed there were more like me<sup>1)</sup>.

After returning to Japan, I missed the destination and wanted to return there<sup>4)</sup>. I was telling my family that I would be back tomorrow. Half a year later, my regrets finally began to subside<sup>4)</sup>. I started thinking about my future. I felt that the Japanese way of schooling was boring<sup>5)</sup>, less fun, and less efficient. Studying for exams was a mechanical and meaningless process. It was an education without thinking really. It was enough, as long as we knew the correct answer in a class. We couldn't see what would be ahead beyond the class. I didn't like the Japanese education<sup>5)</sup> because it didn't help develop individual characteristics. I started to participate in local events<sup>1)</sup> such as festivals and volunteer activities. I began to greet and chat with local people<sup>1)</sup>, including the elderly. The attitude of being actively involved was what I learned when I studied abroad<sup>1)</sup>. However, the easy way to decide things didn't get in touch with the people around me in Japan<sup>2)</sup>. Therefore, it was a pity that such a way couldn't be practiced.

Features of Q1: After overcoming the initial anxiety, she became familiar with a new place. She missed her study abroad destination after returning to Japan. The maintenance of cultural behavior was recognized. She had a negative view of Japanese culture, and the reverse culture shock was clear. It could be said that it corresponds to the bow-pulling model.

### ***Ms. Q's second time (Q2)***

Aiming for improving my English ability and enjoying the local culture, I decided to study abroad for the second time. I wanted to use my English to study specialized things this time. I also liked the music and buildings there.

At my study abroad destination, I lived in a dormitory and formed a good friend group of international students of various nationalities. I had been acquainted with local

students and international students, and my friends had expanded further. I had been in contact with several people even after returning to Japan. I got used to the studying abroad life in about two weeks after arriving. I met the standard of required language ability, my housemates helped me a lot, and then I didn't have any problems in my study abroad life<sup>1)</sup>. At my school, since seminars with a small number of people were suitable for me, I quickly opened my heart and adapted<sup>1)</sup>. It was good to have a fun drinking party regardless of the upper or lower school year of participants<sup>1)</sup>. There were a lot of ironic jokes. I wasn't used to it at the beginning, but I tried my best to get it<sup>1)</sup>. Social etiquette was similar to that of Japan, but I think Japanese food was better.

There was no regret for me when returning to Japan. I was positive and focused on my next goal. I was sentimental<sup>4)</sup>, but I wanted to graduate and work. I wanted to be independent, become a member of society, and travel. I had a lot of things to do in front of me. After all, I decided to go back to Japan. I felt lonely, but I had almost achieved my goal. I got a sense of accomplishment and thought I was in the next step. If I would make money, I could go abroad. I had an environment where I was always able to contact my overseas friends. I wanted to go home early, do more and more things from now on, and start the attempt soon.

After returning to Japan, I wanted to use jokes which I got at the destination, but it was rude in Japan, so I was laughing only in my mind, and it was an incomplete combustion<sup>2)</sup>. I found that the points of laughter were different in the two countries. I also liked Japanese laughter. The difference was also interesting<sup>3)</sup>. Job hunting in Japan during college student years was doubtful<sup>2)</sup>. It was a more rational way to accept an application any time after graduation. I felt that I had both Japanese and the country where I stayed for my second studying abroad<sup>3)</sup>. When I suddenly thought that I was Japanese. I sometimes thought that I was like people in the country where I stayed for my second study abroad.

Features of Q2: She quickly got used to life in the new place. After returning to Japan, she had no particular problems. She was working positively on her life after returning to Japan, aiming for her next goal from a broad perspective. Although there was some unsatisfactory feeling that local behaviors could not be continued, she was conscious of coexisting with both cultures, and the reverse culture shock was not noticeable. She was close to a bird's-eye view model.

## Discussion

Although the cases of two informants staying abroad twice mean different destinations and statuses, they both commonly stayed in different cultures and experienced re-entry to their home culture. The establishment of the reverse culture shock was followed.

P1 selectively accepted the local culture and seemed to retain her original culture well. However, she liked the local lifestyle, and it seemed to cause discontinuity in her life and it led to some degree of reverse culture shock. However, it was determined that re-traveling was set as the next goal, and the confrontation with Japanese culture became temporary. The reverse culture shock was then shortened and alleviated. The second stay was also in the same country, but the status was different. The freedom which emphasized independence also included a loose work attitude and weak involvement that did not require aspirations. The first time, she met ambitious people who took advantage of freedom, but the second time, she

saw the negative side of the cultural values. It might have been a little passive as she was dependent on the external stimulus of the environment, but after realizing that the environment did not offer much education, and there was little growth from stimulating human resources, she devised unique ways to spend her time. After returning to Japan, she felt a reverse culture shock due to the lack of stimulation and freedom. It was possible to say that she was facing the negative aspects of Japanese culture that she had overlooked when she returned to Japan. It might be called an alienation model in that it was difficult to settle down in any culture. However, since it was a suggestion and only a single example, the establishment of this model still requires verification.

Q1 was blessed with a family, school, and local environment while studying abroad in high school, and experienced a leisurely time. After returning to Japan, she looked at her original culture negatively and experienced a reverse culture shock. Although her second experience studying abroad was in a different country, she gained the support of her colleagues, adapted her language and style of interaction, and quickly put her study abroad life on track. Returning to Japan with a sense of accomplishment, while being aware of overseas travel and exchanges, she worked towards her next goal of being independent and switched attitudes to get a bird's-eye view of both cultures. It could be said that reverse culture shock was limited in her case.

Reverse culture shock showed different aspects in the first and second episodes for Ms. Q. This study tried to find an answer to the research question of whether the bow-pulling model was repeated from the analysis of reverse culture shock in two overseas stay cases, and the answer is no. Ms. P changed from a bow-pulling model to an alienated model. Ms. Q has changed from a bow-pulling model to a bird's-eye view model.

If the bow-pulling model was not fixed, how could the occurrence of reverse culture shock be understood? Regarding the response to the discontinuity that became an issue after returning to Japan, there were various subjects and reactions, and it seemed that stable individual characteristics, a fluid posture, and the environment were involved. Dissonance occurred when something was not continuous and the unfolding response did not fit it. Referring to the previous research on the bow-pulling model (Tanaka, 2021), let us consider the occurring mechanism.

A noteworthy point was the evaluation of home culture. Tanaka (2021) pointed out that if a person was familiar with the place of stay, whether they showed denial of their original culture or showed a bird's-eye view to the two cultures, including their home culture after returning, would make a difference in terms of the degree of their reverse culture shock. Both Ms. P and Ms. Q adapted well to the culture of the destination. However, denial of original culture in P2 was obvious. Q2 had a bird's-eye view including her original culture with a weak culture shock. The interpretation could apply to the fact that the two patterns of reverse culture shocks were divided into heavy and light shocks.

The other point was the evaluation aspect. Both P1 and Q1 highly evaluated their local lives. Regarding culture, P1 selectively, and Q1 highly, accepted the new cultures. In P1, the discontinuities faced after returning to Japan might be stronger in terms of lifestyle than in terms of culture. It could be said that reverse culture shock occurred not only in cultural differences but also in discontinuities in lifestyle differences. Not only differences in internal values but differences in the external environment caused confusion in re-adaptation. In this sense, it might be more accurate to call it a re-entry shock. Looking at the second time, Q1

was moderately evaluated for life and culture everywhere and settled on a bird's-eye view model. However, Q2 aligned to the alienation model because the evaluation of both culture and life was sluggish, and the existence of an alienation model which showed uncomfortableness due to these factors was recognized. The alienation model was this study's discovery. Elements of life other than culture could not be underestimated. This study suggested that factors related to the evaluation of the external environment, such as suitability for lifestyle and personal preferences, were involved in the reverse-culture shock. Identification of cultural values and alternative selection of value frames could be said to be internal factors. Evaluation of the social environment might be an element in between internal and external factors.

## Conclusion

The bow-pulling model assumes selective adaptation of culture, and assumes a reactionary psychological reaction that causes reverse culture shock after returning to home country if it becomes familiar with the culture of the destination. It was confirmed that a psychological burden occurred when some discontinuity occurred in culture and life and the person's response was unsuccessful. Initially, participants corresponded to the bow-pulling model, but the second time they reacted differently. Reverse culture shock is caused by the interaction of internal factors such as dissonance of cultural values, with external factors such as lifestyle preferences and evaluation of the external environment, and is a negative view of the mother culture which is believed to strengthen the degree of shock.

The remaining issues and future prospects were as follows: regarding reverse culture shock, there were not many studies that explain the psychological mechanism. There were some studies that focused on demographic traits such as gender and age (ex. Rohrich & Martin, 1991), and those that evaluate specific properties such as the transformation of cultural identity (ex. Cox, 2004), but the evaluation of multiple factors was sparse. In particular, there were few studies examining longitudinal changes. Hypothesis-generating research depending on actual cases like this study which looked at the process of occurrence of reverse culture shock in detail, and explored the mechanism using qualitative methods would be promising. Black, Gregersen, & Mendenhall (1992) suggested the involvement of intercultural distance, but in this study, it was not clear how the difference of destination was involved. All destinations were English-speaking countries with Western culture, in this study. In Japan, the majority of study abroad cases are linked to Western European countries. However, it is desirable that the move to other countries be made fully clear. This study was an attempt to trace the case of a limited number of people in detail, but it is desirable to obtain a larger number of samples, verify the generalizability of the findings, and make the subclassification more reliable.

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***Personality Traits, Motivation, and Performance of Employees in a Pharmaceutical Company in the Philippines: Basis for Performance Improvement Plan***

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**Abstract**

This descriptive correlational design study examined the relationship between employees' personality traits, motivation, and performance of employees in a pharmaceutical company in the Philippines. Corollary to this, it determined whether personality traits and motivation predict the work performance of medical sales representatives. A total of 125 medical sales representatives assigned at the NCR were selected for the study using stratified and universal sampling. Three instruments were used in this investigation: The Big Five Personality Test by Mcrae and Costa (2003) to identify the personality of the respondents; Work Motivation Questionnaire-A by Agarwal (2012), and the Performance Appraisal Evaluation by Getz Pharma (2018). Motivation and job performance were shown to be positively associated, as were personality traits and work performance, but motivation and personality were found to be unrelated. The strength of the relationship for the first two constructs, however, was weak. Further, results also suggested that material incentives and job situations were significant predictors of work performance. The majority of the findings are supported by the literature review, except for the link between personality traits and motivation in the context of sales, which needs further investigation. Finally, a general work performance improvement plan is recommended to further improve the performance of the medical sales representatives.

**Keywords:** Personality Traits, Motivation, Work Performance, Sales Representatives, Predictors of Performance

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## Introduction

The Philippines is the 11th most attractive pharmaceutical market in the Asia-Pacific region and the third-largest pharmaceutical market in ASEAN, after Indonesia and Thailand. While, Filipino pharmaceuticals is one of the fastest growing industries in the country and has grown year to year.

Pharmaceutical and healthcare companies are the major employers of medical sales representatives which is the most visible person in pharmaceutical marketing while they're bottom-most position in the hierarchy, but it has the most significant responsibility in the success in the business of the company in driving sales and increasing demands in the prescription that will turn into sales in time. In the study done by Bakker, Tims, and Derks (2012) researchers concluded that employees with a proactive personality crafted their own jobs in order to stay engaged and perform well. However, personality traits may also be key indicators of other facets of an individual's life, including innovativeness and satisfaction with life and work according to Loewe et al., (2014).

Having a motivational work environment is important especially in workplaces that has a high level of stress, pressure and target to achieve. In the research study conducted by Yongsun, Barbara, and Christy (2002) results shows that motivated employees are needed and required during this generation wherein workplaces and markets are rapidly from time to time this will help the organization to survive by performing the job and work required with their full latent; hence employees will be more productive.

Work performance is crucial to business organizations and the company's overall success, business leaders have been trying to understand the factors affecting it to develop ways to further improve employees' work performance. The study of Usop et al. (2013) correlated work performance with job satisfaction. The result of the study suggested that workers who are satisfied with their jobs have high work performance. The most common variable correlated to work performance is motivation. In the study of Srivastava (2016), she maintained that for the company to optimize employee performance, there is a need for the employees to be sufficiently motivated.

Personality is another factor investigated along with work performance. Bakker, Tims, and Derks (2012) concluded that employees with a proactive personality crafted their own jobs in order to stay engaged and perform well. Among the sector that thrives on sales are pharmaceutical companies. Getz Pharma Philippines ranked 15th across the pharmaceutical companies in the Philippines. It is a multinational company domiciled in Pakistan, with a presence in more than 25 countries worldwide.

In the Philippines, Getz Pharma is currently ranked 15th across the pharmaceutical companies, it is also considered as one of the fastest-growing branded generic companies were in just five years into operation it became one of the top twenty pharmaceutical companies. Year 2015 were Getz started operations in the Philippines and it has earned reputation nationwide in the market due to its highly qualified, agile, passionate, hardworking marketing, sales workforce and support teams. With the steep competition brought about by a number of local and multinational pharmaceutical companies in the country, Getz has been looking for ways to further improve its sales to become the most profitable pharmaceutical company in the country.



The company, therefore, banks on its sales representatives to perform well to keep the company ahead of the competition. Because of the increasingly competitive environment, Organizations face a lot of challenges. Employees are expected to excel still more and maintain a highly competitive mindset considering the market competition and the volatile working environment. Much more medical representatives should maintain good personality traits, keep motivated, and strive to achieve the highest performance that will lead to the company's goal. In highly performance-based companies like Getz, it can be seen as a necessary factor in enhancing employee engagement, satisfaction, commitment, and performance in the workplace. Having a motivational work environment is crucial, especially in sales companies characterized to have high levels of stress, pressure, and target to achieve (Yongsun, Barbara, & Christy, 2002).

In order to retain high sales performers, Getz Pharma ensures to provide benefits and incentives to its employees to maintain and attract highly qualified sales representatives and for them to be motivated to perform. The factors investigated in this present study are similar to the work of Seibokaite and endriulaitiene (2012) who found out that personality type predicts work motivation, which in turn, could predict work performance. The paper of Nuckcheddy (2018) likewise revealed a similar result that personality predicts motivation through personal emotional stability, level of aggression, and extrovert or introvert characteristics of workers. It was also found that personality predicts work performance.

The study concluded that personality is a factor that should be considered by management as they strive to improve the motivation of workers and optimize their work performance. Getz Pharma has been striving to improve employees' motivation and work performance through various awards and incentives. However, despite these company efforts, very few medical sales representatives get an excellent marks in their performance evaluation. While others are exhibiting personality traits that seem to match the job, they nevertheless perform less than par.

In 2017, Getz Pharma embarked on an ambitious goal "To be among the Top 10 Pharma Companies in the Philippines by 2020." It is currently in the 15th spot among pharmaceutical companies in the Philippines. In order to achieve this, medical sales representatives have to work harder and exceed sales targets. However, this goal was never realized due to the pandemic and restrictions in going out, and aside from that, the company's target since 2017 was not achieved. It was also observed that sales representatives seemed to lose their momentum. Those who were extraverted and enjoyed going out could not do so anymore as often prior to the pandemic. Thus, sales performance had been affected and motivation ran low.

Getz Pharma again resets its goal last 2021 to get into the top 10 largest pharma companies in the Philippines by 2022-2023 with sales reaching Php 6.2 Billion. While the pandemic is still raging, it has to find ways on how to keep sales representatives motivated, raise work performance levels, and put to good use the differences in personality types of sales representatives and make it work to the company's advantage. Given this context, this study attempts to investigate the relationship between employees' personality traits, motivation, and work performance. Corollary to this, it likewise aims to determine whether personality traits and employee motivation predict the work performance of medical sales representatives.

## Conclusion

The results are reviewed from two different perspectives. The first perspective examined the results from the general standpoint of how the results relate to the previous literature in the field and how the results can be applied generally to the wider field of interest. The second perspective is to interpret the results in detail to understand their meaning relative to what was expected and potential reasons for the actual results.

1. The personality traits of medical sales representatives that predicted performance are agreeableness, conscientiousness, and extraversion. Conscientiousness and extraversion are two of the most important traits to look for in hiring salespeople.
2. Sales representatives' level of motivation were generally described as above average. However, they had high motivation in terms of job situation and psychological work incentives. They have above average on organizational orientation, materials incentives, and workgroup relations, while they have average motivation on dependence.
3. Medical sales representatives demonstrated that they had met 96 percent to 105 percent of their performance goals, including both key performance indicators and behavioral indicators.
4. There was a statistical relationship between personality and performance, and motivation and performance. This supports the literature reviewed suggesting that personality and motivation interact to affect job performance. The result is supported by various studies that revealed that if employees are more motivated, then their performance increases. Still, other studies also reinforce the result of the present study that the motivation behavior of the supervisors enhances salespeople's motivation and performance. As supported by the literature, the Big Five is a very strong indicator of job performance and productivity.
5. Motivation and personality traits predicted performance. Aspects of motivation such as material incentives and job situation predicted performance. This result is supported by other findings which revealed that material incentives correlate with a higher level of performance and outcomes from employees seeking to obtain the rewards. Further, material rewards were more effective in increasing performance. Moreover, other researchers have asserted that performance may be influenced by motivation and personality.
6. There was always room for improvement no matter how good employees' performance are. As a result, general improvement plans have been offered to narrow performance gaps or boost the company's sales representatives' performance and motivation.

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***Japanese Students' Personal Requirements for Interaction in English With Foreign Students, Examined by Free Description***

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**Abstract**

The aim of this study is to determine which factors (such as motivation, interest, language ability or context) lead Japanese university students to interact in English with Foreign university students. The study targeted 128 Japanese undergraduate university students, executing a survey as research method to gather data about their preferences, experiences, and expectations towards interaction with international students in English. Further, specific questions aimed to collect information about the ideal non-classroom interaction situation. Content Analysis method (内容分析) was applied, and the answers were finally grouped in five main categories: Individuality (1 on 1 interaction), External Physical approach, Motivation, and interest (to interact), 'Adequate' place and time and 'Adequate' Language Ability. Interpretation of the data allows us to say that the students' requirements and beliefs sometimes work as limitations or barriers for interaction. It is also apparent that the respondents tend to wait external initiative to engage in an interaction and might wait for a particular context or situation until they participate in one. Another factor is the self-perception of their language ability, fearing possible communication issue or improper use of the language. Such judgment, however, may not correspond with the actual language competence of the students. Emotional factors like motivation, interest, self-perception, and confidence, appear to affect their willingness to communicate, even if their language ability is adequate. In addition, the findings not only allow us to pinpoint these preferences, but also let us provide suggestions for a smoother interaction in English.

**Keywords:** English Interaction, Japanese Students, International Students, Intercultural Interaction, Personal Requirements, Preferences

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## Introduction

Our ability to create and sustain our social world depends in how well we communicate (Wiemann, 2003). It is also well-known that, to achieve more effective communication, a competent use of a language is necessary.

English language is currently the *lingua franca* (common language for communication) of the world. It is also acknowledgeable that English-language skills are required to compete in the global economy. However, in a study made in 2019 for the EF English Proficiency Index, Japan was ranked 53rd in the world for English proficiency, placing it squarely in the “low proficiency” category. Despite the current efforts made by Japan's Ministry of Education and changes in the English educational curriculum in schools, Japan ranks near the bottom of Asian and developed countries alike (EF English Proficiency Index, 2020). One aspect of this situation we would like to touch on is whether Japanese university students, when their instruction in English can reasonably be considered completed (after finishing high school), see themselves in an interaction in English, not in the classroom environment but outside any educational setting and which factors do they consider for this perception.

In previous studies, factors for interaction in a foreign language were examined inside the classroom or in specific academic context. Interaction in English outside the classroom was addressed in the context of study abroad (Tanaka K., 2007) or, closer to our concern, in Japan in an attempt to provide a measurement of learner's environment (Lee, et al. 2011). In a different way, we want to question the conditions under which students considered or are considering interaction in English with foreign interlocutors, with the idea, as Maftoon and Ziafar (2013) suggested, of shedding light on factors usually left in the shadows: “Classroom interactional patterns depend on some contextual, cultural, and local factors in addition to the methodologies employed in the classroom. (...) Research needs to shift from the observable to the unobservable like (...) learners' psychological states and cultural backgrounds” (P.74).

The perspective Japanese students have towards the foreign language and their users also needs to be considered. Hamilton (2017) pointed that there is a deep-rooted ambivalence most Japanese still feel towards foreigners and foreign cultures. So, to achieve a substantial improvement in this state of affairs (neglection to use English), a parallel and progressive change in the Japanese cultural psyche towards the foreign language and people, should take place.

In this line of thought, the present research sought to obtain more information about students' perspective on English interaction outside the classroom by seeking to identify Japanese students' requirements for engaging in interaction with foreigners in English.

## Methodology

A mixed method, mainly qualitative, with use of quantitative tools as support, was used in this study. We mainly took in consideration, as base elements: (a) Undergraduate Japanese University students (b) Interaction in English (c) International students. The research was conducted between May and July of 2021. An online questionnaire was assessed. The participants for this study were 128 Japanese undergraduate university students, 88 females and 35 males, between 18 and 21 years old (data obtained from the first question of the questionnaire). The questionnaire items (Q 2,3,4) were elaborated considering that so far, the majority of the previous research addresses interaction in Foreign Language mainly as in-

classroom interaction (Littlewood and Yu, 2011; Tuan and Nhu, 2010; Rashidi and Rafieerad, 2010), Nabei, 2005; etc) , aiming to obtain more information about interaction in more informal contexts, or non-academic ones, considering that context is an important factor in social interaction, and most of this is done outside academic premises (Liem, G. A. D., Ginns, P., Martin, A. J., Stone, B., & Herrett, M. (2012).

This short questionnaire had as main purpose gathering information from Japanese students related to existence/viability of interaction in English with International students. It has 4 main questions, gathering data related to: (1) Their personal information (age, nationality, gender, year of instruction; (2) Experience interacting with international students (IS) in Japan in English (yes/no); (3) Situation and reason (if they had experience interacting with IS; (4) Personal opinion about Ideal circumstances for interaction in English. The questionnaire was written (reviewed by native speakers) in Japanese, so that the respondents felt more comfortable and could provide more honest/precise answers.

After gathering the information, the answers were carefully translated to English, processed (word counting) by KH coder software, pre-categorized by circumstance/topic and then categorized in a theoretical model, through Content Analysis method (内容分析. KH software was used to count the most common used words, according to their frequency of their occurrence, to have a quantitative reference for the pre-category formation. As a result, a word table (Word frequency chart) was obtained (Figure 1a, 2a, 3a in Results.) After obtaining this selection, the words were analyzed in their context (participant's answers) and pre-categorized through Content Analysis method (used to reach a consensus on qualitative data and the names of the pre-categories) for further interpretation, as showed in the figures 1b, 2b, 3b (Results). From this point, thematic/circumstantial pre-categories were classified, also through Content Analysis method, establishing the final categories of theoretical model (Figure 4).

## Conclusions

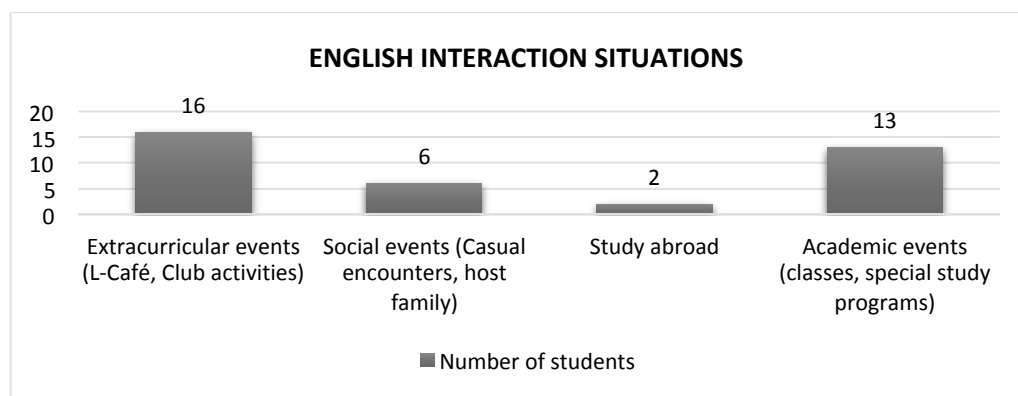
## Results

Regarding question (Q2): “*Do you have any experience interacting in English with international students in Japan?* (あなたは、日本で留学生と英語で対話した経験がありますか)”, the results showed that the vast majority (71%, 91 Japanese students) had not had an interaction in English with International students so far. Only 37 people (29%) had had one or more.

For the respondents who already had experienced an interaction in English with International students, question 3 was asked: Q3: If you answered "1. Yes" to Q2, please tell us: a. Situation and b. Reason or trigger. (問2で「1.ある」と答えた方にお聞きします。a.それはどのような状況でしたか？b.その理由やきっかけは、どのようなものでしたか？). Frequent word chart was elaborated using KH coder (Figure 1A and 2A) and then answers were divided by **Situation** (Figure 1B) (Total answers: 37; SD: 6,40; M: 9,25) and **Reason** (Figure 2B) (Total: 37; SD:10.50; M:12.33), using Content Analysis.

Frequent word(s)	(Pre)Category	Frequent word(s)	(Pre)Category
L-Café	Extracurricular event	School	Academic event
Club (activities)	Extracurricular event	(he/she) talked to me	Social Event
Host family	Social Event	Casual/small talk	Social Event
Class/lesson/study	Academic event	Overseas/abroad	Study abroad

Figure 1A: Frequent words (pre)category chart (English Interaction situations)

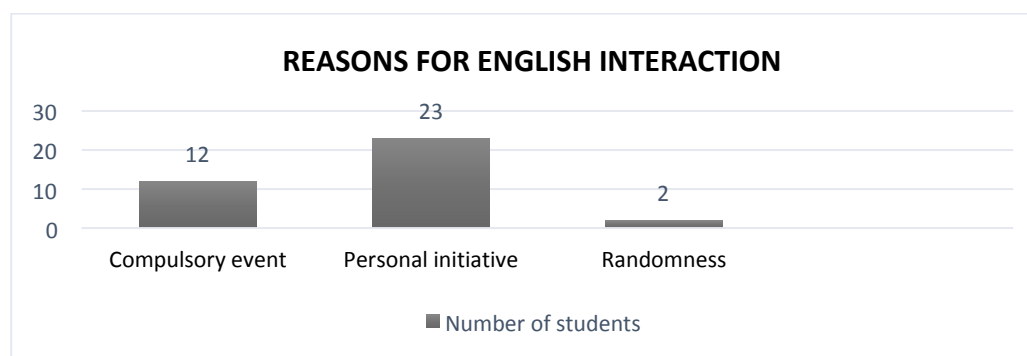


Total answers: 37 SD: 6.40 Mean: 9.25

Figure 1B: English interaction Situations (categorized)

Frequent word(s)	(Pre)Category	Frequent word(s)	(Pre)Category
(I) wanted to (voluntary approach)	Personal Initiative	Improve (language skill)	Personal Initiative
Physical proximity	Personal Initiative	(I) had to	Compulsory event
Host family	Personal Initiative	(he/she) talked to me	Compulsory event
Class/lesson/study	Compulsory event	Overseas/abroad	Personal Initiative
School	Compulsory event	Other (random/no particular reason)	Randomness

Figure 2A: Frequent words categorized chart (English Interaction reasons)



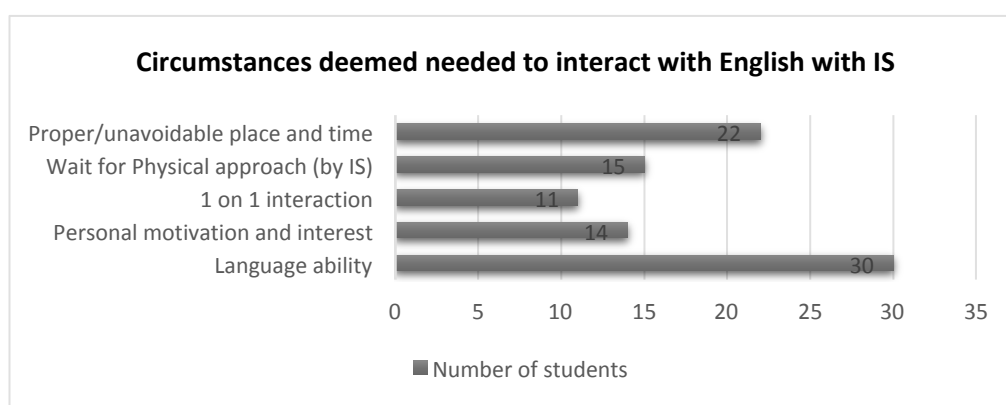
Total: 37; SD:10.50; M:12.33

Figure 2B: Reasons for English Interaction (categorized)

For the respondents who had not had an interaction in English with International students, question 4 was asked: Q4: If you answered "2. No" to Q2, please tell us under what circumstances, if any, would you be willing to have a dialogue in English with a foreign student? (どうしたら／どうすれば／どうなれば／どんな状況であれば、留学生と英語で対話しますか?). Words were counted (KH Coder) and **categorized** (Content Analysis method). (Figure 3A) and answers were grouped and by topic as well (Figure 3B) (Content Analysis method) (**Total: 92 answers; SD:7.64; M:18.40**)

Frequent word(s)	(Pre)Category (circumstances)	Frequent word(s)	(Pre)Category (circumstances)
He/she speaks to me	Wait for physical approach	I have enough (English) skills	(English) Language ability
Physical proximity	Wait for physical approach	If I am supported by other in the same space	Proper/unavoidable place and/or time (context)
(same) class	Proper/unavoidable place and/or time (context)	I am interested in	Personal motivation and interest
(same) activity	Proper/unavoidable place and/or time (context)	I feel confident in my English skills	(English) Language ability
We are alone (only us) /	1 on 1 interaction	Nobody else around us	1 on 1 interaction
I want to	Personal motivation and interest	Incoming chance/opportunity	Wait for physical approach
no pressure from other people	1 on 1 interaction	If I must	Proper/unavoidable place and/or time (context)

Figure 3A: Frequent words category chart



Total: 92 answers; SD:7.64; M:18.40

Figure 3B: Circumstances deemed needed to interact with English with International Students (IS) (categorized)

## Implications (Discussion)

After reviewing the answers from the questionnaire, common denominators are noticeable between Japanese students who had already interacted with international students and those who had not yet had this kind of interaction. Both the context and the reasons stipulated by those with interaction experience are consistent with the expectations of those who had not yet interacted with IS. Under this view, contexts and reasons can be grouped together, and final categories were organized in a theoretical model as follows:

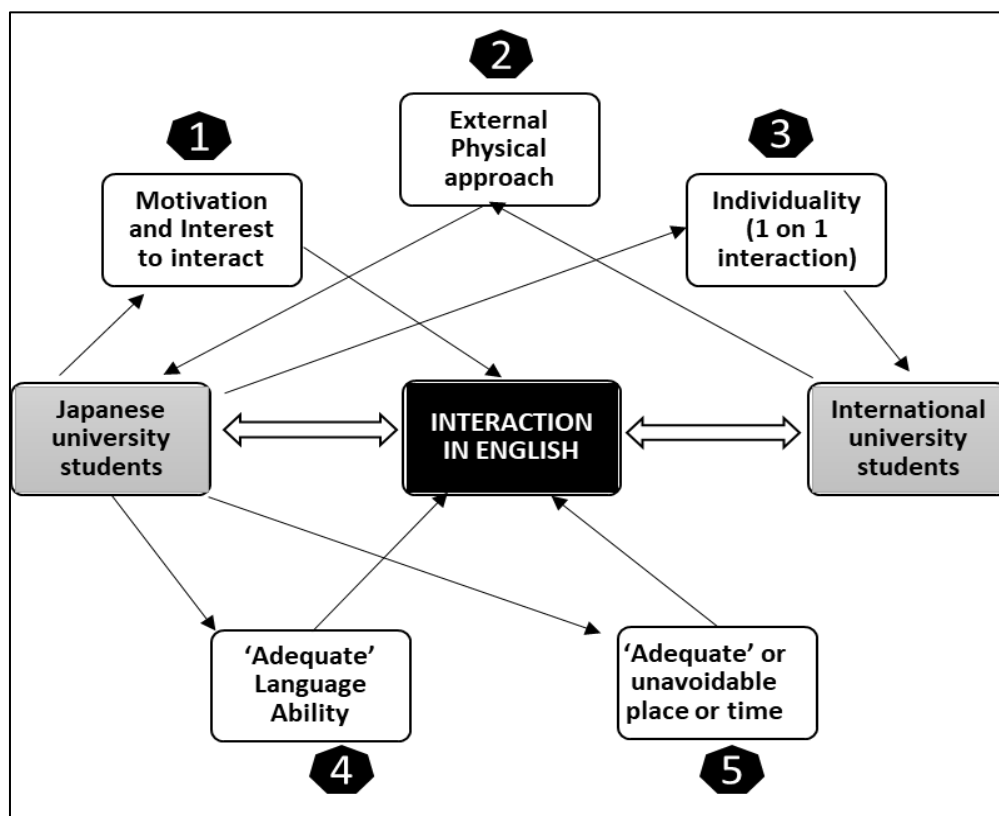


Figure 4. Theoretical model – “Japanese students' requirements for interaction in English”

Any interaction has internal and external factors that affect it. In the present study, regarding the requirements or preferred particularities of Japanese students to interact in English with foreign students, 5 main assumptions (connected by numbers 1 to 5 at the Fig.4), derived from the final categories, can be made pertaining to such internal and external factors:

**1) Most of the respondents require (intrinsic or extrinsic) motivation and personal interest to interact in English with International students (交流への意欲・関心)**

Affective factors are almost always a condition in learning and social experiences. Many Japanese people are not keen to learn or use English for interaction. In the early 1980s a governmental poll revealed the astonishing statistic that 64% of Japanese people questioned, declared that they did not wish to have any association with foreigners and had no intention of ever doing so. Of the 25% who did express a desire to associate with foreign people, fewer than a sixth, or 40% of the total sample, were doing so (Hamilton, 2004). Thus, perspective, personal interest and both internal and external motivation might play a key role in the willingness to communicate in English. This also may help to reduce the Affective Filter (Krashen, 1981) which

normally generates resistance to the experience and smoothen the communication process, as previously seen in Stevik (1976), who also reinforces the idea that learners with negative attitudes towards second language acquisition or interaction will have a high socio-affective filter, will fail to process the ideas or contents behind the message transmitted, even if they could understand them.

**2) Most of the respondents will wait for foreign students to approach them and start interacting in English. (相手からの物理的なアプローチ)**

According to the data, a good number of students will wait for the counterpart (International Students) to approach and won't take the initiative to start the interaction. While this could be seen as a passive role or posture from the part of the Japanese students, cultural factors might be playing a role from a Japanese point of view, avoidance of initiation might be a matter of pertinence and convenience, as well as valuation of silence (Nakai, 2002) and non-verbal communication (Ruch, 1984) in interaction.

**3) Most of the respondents prefer to have 1-on-1 interaction in English with International students (1 対 1 の対話)**

Japanese students would prefer to have one-on-one conversations in English with International students, rather than conversations in larger groups, because this reduces the impact of mistakes on their self-confidence.

Additionally, for many Japanese, self-blaming and shame (haji) are the root of virtue and who is sensitive to it might be seen as a virtuous person (Benedict, 1946). In the present study, respondents might avoid public embarrassment in preferring 1-on-1 interaction: *"only us, if possible, since I am shy in front of others, because of my limited English"*, said a female student. At this stage of the analysis however, it is not clear whether avoidance of initiation is a manifestation of modesty or just insecurity.

**4) Most of the respondents will interact in English only if they have (or think they have) a 'proper' (English) language ability to do it. 適正言語能力 (現実的または知覚的)**

There are two factors to consider in this part. On the one hand, the actual level of competence in the use of English of Japanese students, and on the other hand, the self-perception that they might have about it. While there are many students who need to work on and develop more linguistic aspects such as vocabulary and conversational skills, there is a group that will not be able to interact just because they think/believe they cannot do it, regardless of their level of competence or preparation. Emotional factors like self-esteem and confidence; social factors like shyness and communication style; and cultural factors like prudentialism and humbleness might play a role here (see previous factor).

**5) Most of the respondents will interact in English only if they feel that the context (time, place, opportunity) is right (or demands it). 適切な、または避けられない場所や時間**

Again, emotional factors, especially perception of context, might play an important role in this aspect. Some Japanese students may only interact if "the situation allows/demands it", as one of the female students answered in the questionnaire. Places like classroom, official events, club activity's locations, language café, known

environments and controlled situation allow many of them to feel safer to interact, or in some cases, they 'wouldn't have other option than do it', as quoted by a male student from the group. This last statement has apparent relation with the assumption number 2 above, which establishes that Japanese students will wait an approach to engage in the interaction. Sometimes, Japanese students might be moved by compulsoriness, rather than personal initiative, which might show their motivation as merely an instrumental factor (Oura and Tada, 1978).

### **Limitations of the study**

Although the survey conducted allowed us to know more about tendencies and requirements of Japanese university students regarding Interaction in English with International students, this is a limited perspective that reflects the reality of this group. The participants were mostly freshmen and second year students, and their in-campus academic life have been affected and limited due to COVID-19 pandemic. This also limits the opportunities of the Japanese students to interact with international students, since their entry to Japan is currently restricted. Additionally, their answer may only reflect their estimation or image, based in previous experience, due to the limited opportunities for interaction or encounter with international students nowadays. We need to also take in consideration the fact that the answers were translated from their original language (Japanese) for an easier analysis and presentation of results (In English). The categories were created based in this interpretation of the data. We would like to use the created categories, both the English and Japanese denominations, in future related extended studies.

Generalizing the results is not possible yet, since there is evidence that other influencing factors/requirements to be considered have not fully appeared in the answers. Further research is required to evaluate the degree of influence of the above and other factors on Interaction in English. It would be helpful as well to know the point of view of International Students, as they might have a comparable experience using Japanese language to interact with Japanese people.

### **Final notes and recommendations**

It is coherent to say that, along with other external factors, Japanese student's personal requirements (expectations) to establish interaction is more related to personal convictions. Self-perception of their language ability, the sense of comfortability and safety, and their own self-esteem and confidence are playing important roles in their attitude towards English language learning, in the first place, and Interaction in English Language, in second place. Social, cultural, and personal circumstances that shaped their way of thinking are also influencing their motivation to use English outside the classroom. Knowing that English Education in Japan still focuses mostly on grammar, vocabulary and formal aspects of the language, a specialized program and a reform of the current curriculum might help to change the current perspective towards the foreign language and help to support students' sense of confidence towards the use of English in interaction.

As we pointed at the beginning of this article, English is the world's lingua franca and it is necessary not only for international communication, but for a wider intercultural (and even intracultural) understanding. Foreign language learning, development, and improvement in practical use, take place frequently outside the walls of a classroom. It requires a conscious effort (Beames, Higgins and Nicol, 2011), and a dedicated time of extramural practice, since



that time and both the level of oral proficiency, and the size of the vocabulary, have positive and significant correlation (Sundqvist, 2011). We would like to play our role and use the knowledge obtained (and to be obtained) to improve the interaction context in English for Japanese in the near future.

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***Parenting Self-Perception During the Covid-19 Pandemic: Are There the Differences Between the Full-Time Working Mothers, Flexible-Time Working Mothers, and Housewives on It?***

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**Abstract**

Covid-19 Pandemic had brought various changes in human life, including in education and work. During the pandemic, students underwent a distance learning system. Work from Home (WFH) and Work from Office (WFO) were also applied to working people, including working mothers. The objective of this study is to examine the differences in parenting self-perception between full-time working mothers, flexible-time working mothers, and housewives. Parenting self-perception is divided into four dimensions, namely investment, competence, integration, and satisfaction, and were measured using The Self-Perceptions of the Parental Role (SPPR). There were 174 mothers who were participants in the study spread across cities in Indonesia. The results showed that there were no significant differences in the dimensions of investment, competence, integration, and satisfaction in all three types of mothers based on their employment status.

**Keywords:** Covid-19 Pandemic, Parenting Self-Perception, Full-Time Working Mothers, Flexible-Time Working Mothers, Housewives

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## Introduction

The Covid-19 pandemic had brought many changes in human life. One of them was the restriction of mobility of people outside the home. People were asked to stay and do activities from home, such as studying and working.

In Indonesia, in March 2020, the government imposed Large-Scale Social Restrictions (LSSR) ("Indonesia large-scale," 2022) to impede the movement of people and goods in and out of their respective regions. LSSR also included the restriction on school and work holidays. There were also the limitations to doing worship at mosques, churches, *purah*, and temples, as well as doing public gatherings. Then, in January 2021, the government instructed all governors in Java and Bali to apply the Community Activities Restriction Enforcement (CARE) ("Community activities," 2022), which specifically limited people at workplaces, schools, restaurants, and shopping centers. There were some levels of the CARE in which the lower the level, would be the more restrictions.

Many restrictions had brought some consequences to the family member. Parents, especially mothers as primary caregivers, had to take on more roles during the pandemic: as a mother and a teacher for their children, a wife for their husbands, and might also as an employee for working mothers. As a mother, she had to take care of their children. She also had to organize and support her children's learning and teach them since studying was conducted from home (Agostinelli et al., 2022). As a wife, she had to take care of her husband and do some household chores. As an employee, she had to complete assigned work, attend meetings, and sometimes time to work at home exceeded their working hours in the office. The various roles they had required mothers to be able to integrate their roles well. The ability to integrate them could make mothers feel positive and satisfied in life, and it is expected to affect parenting satisfaction (Comer & Stites-Doe, 2006; Vieira, Ávila, & Matos, 2012). Otherwise, the inability to integrate them could make mothers feel distressed, and it is expected to affect their parenting dissatisfaction.

In addition to the mothers, pandemics also affected the children. A study from Sun et al. (2022) found that the pandemic could increase child behavior problems. These problems could bring parenting stress, which over time would yield maternal distress and parenting incompetence. The feeling of incompetence could emerge because mothers felt unable to handle the child's problems.

The pandemic also made parents need to make adjustments and adaptations in parenting. This could be due to the changes triggered by restrictions during the Covid-19 pandemic, which had promoted parents to learn new strategies and forms of parenting (Weeland, Keijsers, & Branje, 2021). Generally, someone who considered her role as a mother important would invest more time and energy to learn to be an effective parent (MacPhee, 2019), including during this pandemic.

Feeling of parenting competence, parenting satisfaction, ability to integrate various roles, as well as how important the role as a parent for the mother is linked with parenting self-perception. Parenting self-perception refers to how a person perceives him/herself in the role of a parent (Delvecchio, Riso, & Salcuni, 2016). Meanwhile, MacPhee (2019) defined it as how they evaluate their own parenting and why they parent the way they do. There are four domains of parenting self-perception; they are competence, satisfaction, investment, and integration/role balance (MacPhee, Benson, & Bullock, 1986). At length, parenting self-

perception includes how the parent evaluates his/her ability in the parenting role; how the parent perceives the quality of positive affects, such as happiness and satisfaction, associated with the parenting role; how much time and effort the parent invests in becoming a good parent; and how well parent can integrate their various roles (for examples, role as a parent, spouse, employee).

The present study examined the differences in parenting self-perception between full-time working mothers, flexible-time working mothers, and housewives. A full-time working mother is defined as a mother who works full-time outside the home before the pandemic, and during LSSR and CARE went through Work From Home (WFH) and/or Work From Office (WFO) systems. Flexible-time working mother is defined as a mother who works part-time or a mother who has flexible hours in work between home and outside the home, and that has been going on since before the pandemic. Meanwhile, a housewife is a mother who cares for her family and manages household chores as her main occupation. The differences in the mother's work status were expected to affect the mother's parenting self-perception. It was because the pandemic had brought changes in routine, parenting the children, and the workplace, especially for working mothers, as well as the emergence of child behavior problems and role addition for mother, which could have an impact on the mother's perception of competence, satisfaction, investment, and integration/role balance. Thus, the research question asked is "Is there a significant difference among full-time working mothers, flexible-time working mothers, and housewives on parenting self-perception?". Participants of this study had at least one child who attended elementary school or kindergarten. This is because children at that stage still need more guidance and monitoring from parents (Papalia & Martorell, 2021), including in studying school lessons, thus adding to the role of mothers as teachers, especially during pandemics due to the implementation of Study From Home (SFH). It was different from teenagers who were already independent in studying or infants and toddlers who generally had not attended school so that mothers did not need to be "schoolteachers". To collect data, Self-Perception on Parenting Role (SPPR) was used for assessing parenting self-perception (MacPhee et al., 1986). The SPPR consists of 4 dimensions: competence (6 items), satisfaction (5 items), investment (5 items), and integration/role balance (6 items), with response weights for each item, are 1, 2, 4, and 5.

## Conclusion

A general description of participants would be presented first before answering the research question and making a conclusion. By using G\*Power version 3.1.9.7 (Faul et al., 2007), it was found that the minimum number of samples needed to reach 80% power for detecting a medium effect, with an alpha level for the test of .05 was 159. This meant a minimum of 53 participants were needed for each group of mothers based on employment status. Based on the data collected, it was obtained 174 mothers; consisting of 57 full-time working mothers, 58 flexible-time working mothers, and 59 housewives. The majority of mothers in the three groups were married with a length of the marriage of more than ten years. Nearly 90% of them also received higher education. They also mostly had two children. For mothers who had more than two children, it was found wide age spacing among siblings. The level of education of children also spread from college to not yet in school, with each mother having at least one child who attended elementary school or kindergarten. Nearly 63% of children, both in elementary and kindergarten, did not need to be accompanied while studying at home. In general, 87.93% of mothers had at least one child in elementary school. Forty-nine percent of children had older siblings, and 52.29% of children were ten-years-old or above.

After testing for normality and homogeneity of variance, statistical analysis was carried out using one-way ANOVA. Based on the analysis it was found that there was no significant difference between full-time working mothers, flexible-time working mothers, and housewives in parenting competence, parenting satisfaction, parenting investment, and integration/role balance. Table 1 below shows the results in detail.

Domain	Source of variance	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Parenting competence	Between Groups	8.239	2	4.120	.198	.821
	Within Groups	3563.169	171	20.837		
	Total	3571.408	173			
Parenting satisfaction	Between Groups	4.194	2	2.097	.226	.798
	Within Groups	1584.334	171	9.265		
	Total	1588.529	173			
Parenting investment	Between Groups	30.204	2	15.102	1.536	.218
	Within Groups	1681.014	171	9.830		
	Total	1711.218	173			
Integration/role balance	Between Groups	75.809	2	37.904	2.151	.119
	Within Groups	3012.881	171	17.619		
	Total	3088.690	173			

Table 1: Analysis of one-way ANOVA

In conclusion, there was no difference in parenting self-perception by employment status. There were some explanations for this result. First, regardless of employment status, the majority of mothers in the study were adult mothers ( $M_{age} = 39.67$ ,  $SD = 4.83$ ) and had higher education. Bornstein et al.'s study (2010) found that adult mothers and mothers with a higher level of education tended to have more parenting knowledge than younger mothers and mothers with a lower level of education. Meanwhile, parenting knowledge was related to parenting competence (Conrad et al., 1992). In future research, the mother's education level can be considered as a moderating variable that may affect parenting self-perception. Second,



this study was conducted when the pandemic has been going on for two years. This condition might make mothers get used to the various new roles they had and were able to integrate all these roles. It was as stated by Lally et al. (2010) that new habits took a range from 18 to 254 days. Another possibility is that people had returned to their routines before the pandemic, such as returning to school for the child and Work From Office (WFO) for the mother. Doing a longitudinal study is expected to be able to find out whether the parenting self-perception among the three groups of mothers remains the same or not. Third, some children were known to be able to learn unaccompanied. When children could learn on their own, mothers did not have to accompany them all the time to study. It could allow them to perform other roles without having many conflicts. Fourth, wide age among siblings might allow the eldest sister/brother to help teach the younger siblings, and it could reduce the burden on the mother in her role as a teacher for her child. In many non-western cultures, older siblings are found often helping or taking care of their younger siblings (Papalia & Martorell, 2021). Fifth, most participants came from intact families. A study by Fine et al. (1986) found that intact families had more family satisfaction than single parents. Sixth, the definition of the employment status of the mother, especially the status of housewife, needed to be described more clearer in the participant data form. It is because the definition used for housewife refers more to full-time mother, whereas in this study, a few housewives were found to be mothers who did entrepreneurship at home, otherwise known in Indonesia as “mompreneurs”. The existence of “mompreneurs” is increasingly spreading during the COVID-19 pandemic.

As the implication of this study, it is necessary to consider an intervention program to improve parenting self-perception. Although there was no difference in parenting self-perception between full-time working mothers, flexible-time working mothers, and housewives, and the data also indicated that scores for all four dimensions of parenting self-perception for most of the participants were above the median for the range of possible scores from the SPPR, a few participants still had low parenting self-perception. Intervention is needed because the perception of parenting, as part of parenting cognition will affect parenting practice done by parents (Bornstein, Putnick, & Suwalsky, 2018).

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***An Exploration of Middle School Students' Experiences of Mindfulness Training in an International School Environment***

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**Abstract**

The following study explores middle school students' experiences of mindfulness training within an international school environment in The Netherlands. A cohort of 11-year-old middle school students participated voluntarily in a pilot run of the Dot B mindfulness program. Eighteen participants were involved, who came from a range of countries including Korea, France, India, the Netherlands, the UK, and the US, and they were all in Year 1 of the International Baccalaureate Middle Years' Program. This was a qualitative study, characterized by the semi-structured interviewing of the students following their participation in the program. The interviews explored students' personal perspectives on the impact of the mindfulness program on their daily lives. The themes that emerged indicated that participation in the training positively influenced students' capacity to manage stress, to be metacognitive, to harness their attention, to regulate their emotions, and to experience present moment awareness. Students identified the strategies that they found most useful, including the 7/11 breathing technique and the Dot B. The positive nature of students' perspectives and experiences prompted the rolling out of the Dot B program across the grade level.

Keywords: Mindfulness, Stress, Meta-Cognition

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## Introduction

In an effort to determine whether students would benefit from mindfulness training in Year 1 of the Middle Years' Programme, a pilot run of the Dot B mindfulness program was implemented within an International Baccalaureate school, in the Netherlands. These sessions occurred after school, and students were free to sign up if they were interested. The students, who participated, were asked to share their perspectives afterwards, and their views were taken into account in determining whether the program could be rolled out to the whole grade level. This article introduces the reader to the nature of mindfulness training in schools, it reviews the relevant research in this area, and then identifies and discusses the themes that emerged in conversation with students within this middle school environment.

Mindfulness-based trainings are characterized by a range of guided meditation practices, such as mindful walking, mindful eating, mindful sitting, mindful speaking, and mindful lying (Kabat-Zinn, 1990), and they are the cornerstone of mindfulness-based interventions, such as MBSR (Mindfulness Based Stress Reduction) and MBCT (Mindfulness Based Cognitive Therapy). The success of these programs on the reduction of stress, depression, and chronic pain in adults led, over time, to the development of mindfulness-based programs for schools (Albrecht, 2014), to the point that there are now more than 30 different school-based programs in place worldwide. Indeed, a recent study in Australia indicates that as many as 50 percent of teachers have already engaged students with mindfulness-based activities (Ager *et al.*, 2014). According to Browning & Romer (2020) the purpose of these school-based programs is to “reduce stress, to regulate emotions, and improve self-awareness” (p. 3). Many of these programs mirror the clinical MBSR and MBCT models, albeit with adaptations made for young people (Semple & Burke, 2019). Similar to MBSR and MBCT, the content of the courses includes breath awareness, present moment awareness, mindful movement, mindful eating, relaxation, and body awareness (Weare, 2012).

The program at the heart of this study is the Dot B Program, which was developed by two schoolteachers, Chris Cullen and Richard Burnett, from two private schools in England (Simpson, 2017), in association with Chris O'Neill, an MBCT student at Oxford University. Together they created the Dot B curriculum for 12–16-year-old students, which is comprised of 9 scripted lessons, designed to “direct attention, moment by moment, with open-minded curiosity and acceptance” (Kuyken *et al.*, 2013, p. 127). The signature practice is also called *Dot B*, which stands for ‘Stop, Breathe and Be!’ In Chris Cullen’s words, the purpose of *Dot B* (both the curriculum and the practice) is “to promote the capacity to respond rather than react” to circumstances in life (cited in Simpson, 2017, p.11). Other practices include the *FOFBOC* (Feet on Floor, Bum on Chair), which grounds attention, while observing body sensations. The *7-11* practice is a brief calming breathing practice that involves breathing in for a count of 7 and out for a count of 11. Longer practices include the *Beditation*, which involves a body scan that is practiced lying down, and the *Sit like a Statue* practice, which is a seated meditation that runs for approximately 15 minutes.

Research carried out on mindfulness-based programs focused initially on adults (Broderick & Frank, 2014), and it validated the health benefits of mindfulness within this population (Van Aalderen *et al.*, 2012). According to Keng *et al.* (2011) findings from correlational studies, clinical intervention studies, and laboratory-based, experimental studies indicate that mindfulness is positively associated with increased subjective well-being, reduced emotional reactivity, and improved regulation of behavior. Given the mounting evidence in favor of mindfulness-based approaches with adults, researchers turned their attention to younger

populations to investigate the effectiveness of school-based programs. Overall, research indicates that school-based programs are effective at improving attention, executive functioning, social and emotional resilience, as well as the capacity to cope with day-to-day stressors (Semple *et al.*, 2017), as well as metacognition (Sanger & Dorjee, 2016), and mental health problems, behavior issues and physical health (Weare, 2012)).

Concerning the Dot B program, specifically, Kuyken *et al.* (2013), found evidence of less symptoms of depression, lower stress levels, and improved sense of wellbeing among 12–15-year-olds who had taken the program. This reflects Burnett's (2011) findings that students find mindfulness helpful for coping with the stressors brought on by school life. Other studies on Dot B have indicated improvements in present moment awareness and in self-regulation (Hennelly, 2011). These results carried through across different year groups. Similar to Dot B, the Mindful Schools program in the US has yielded positive results. For example, a study carried out by Liehr & Diaz (2010) indicated that 89 percent of participating students demonstrated increased emotional regulation, 83 percent demonstrated improved focus, 76 percent showed greater compassion, and 79 percent indicated increased engagement.

An issue that has been raised in relation to the study of school-based mindfulness programs is that the majority are outcomes-based (Ager *et al.*, 2015), with little emphasis placed on qualitative approaches that explore students' perceptions of mindfulness practices. Roeser *et al.* (2012) maintain that there is a critical need for in-depth studies that consider the voice of the students. The qualitative studies that do exist demonstrate that mindfulness training enables students to develop a greater degree of awareness of their emotions, body, and thinking, similarly to the outcomes-based approaches. For example, a qualitative study carried out in New Zealand indicated that school-based programs promoted the development of awareness and empathy, they helped to reduce stress, they increased the ability to focus attention, and the ability to feel calm, peaceful and happy, and they led to greater awareness of emotions and the feelings of others (Ager *et al.*, 2014). In addition, a study that explored the subjective experiences of students in Chile, following a Dot B program, indicated that the expertise level of the teacher played an important role in their ability to benefit from the experience on somatic and emotional levels (Langer *et al.*, 2020).

Even though mindfulness-based approaches have proven beneficial to a range of mental and physical health issues, there is little evidence to validate the role of mindfulness in the reduction of anxiety. A meta-analysis of studies suggests that mindfulness-based interventions have a minimal role to play in the reduction of anxiety in young children, and they have little effect at all with adolescents (Odgers *et al.*, 2015). Another perceived criticism of school-based mindfulness training is that it focusses on the individual, and places minimal emphasis on the social sphere (Simpson, 2017), and even though studies show mindfulness teaching in schools improves social skills, to some degree, it is still unclear as to how this happens. Simpson makes the point that “relationships with others are only discussed in the penultimate class, and showing your gratitude is pitched as really good for you” (2017, p.3). Simpson is making a point about the need for balance between the individual and the collective in the Dot B training.

## Research Approach

A cohort of 11-year-old middle school students participated voluntarily in a pilot run of the Dot B mindfulness program. Dot B has been designed by the Mindfulness in Schools Project for adolescents, and it consists of eight one-hour sessions. In the case of this study,

these sessions were held once weekly, after school, over an eight-week period. Eighteen participants were involved, and they came from a range of countries including Korea, France, India, the Netherlands, the UK, and the US. Ten were boys, eight were girls, and all were in Year 1 of the International Baccalaureate Middle Years' Program.

This was a qualitative study, characterized by the interviewing of the students following their participation in the program. The interviews were semi-structured and they explored students' personal perspectives on what mindfulness meant to them, how they felt about doing the program, what they learned about mindfulness, the strategies that they were finding useful, and how they might use mindfulness-based approaches in the future. The following questions were asked of the students two weeks after they completed the program.

Questions:

What do you think mindfulness means?

How did you feel about doing the mindfulness lessons?

What have you learned about mindfulness from the lessons?

What specific strategies are you finding beneficial?

How might you use mindfulness in the future?

Thematic analysis was carried out, and the resulting themes are discussed and related back to research carried out in the area of school-based mindfulness-training programs.

## **Findings and Discussion**

### **What do you think mindfulness means?**

Initially, students did not have a clear understanding of what mindfulness is. The majority mentioned that they were unsure, as they had had little experience of mindfulness. The responses from others indicated an understanding that mindfulness was associated with awareness, calm, thinking, and decision-making. For example, S16 shared "I think mindfulness is about being aware, being aware of your surroundings". Other students commented on the relationship between calm and metacognition. For example, S4 said, "I think mindfulness is about staying calm and thinking about what your mind is thinking". In addition, there were connections made between mindfulness and decision-making, with S15 saying, "I think that mindfulness is about good decisions that make sense in the time being". Students, who did not feel able to describe mindfulness in words, used metaphors. For example, S12 described mindfulness as "a wave – that just rolls in and then leaves again" similarly to thinking: "it's like your thoughts – they come in, they stay for a while and then they leave again". All in all, even though only a few students were able to elaborate on what mindfulness might be, those who did had clear ideas that reflected some of the patterns that arose in the questions that followed their exposure to the Dot B program.

### **How did you feel about doing the mindfulness lessons?**

Overall, the students enjoyed participating in the program. Their comments indicated that they found it useful and enjoyable. For example, S16 said that she "really liked mindfulness" as it "makes you happy and calm", S14 found it "great", S1 thought it was "really useful". In addition, S4 added, "it can really help me throughout my life". Even though, there was a sense that it was time well spent, there were students who acknowledged that it took a while



to settle in to the program. For example, S12 shared, “At first, I thought it was a waste of time – but then after a few lessons it started to get more cosy and more fun”.

### **What have you learned about mindfulness from the lessons?**

When asked about what they had learned from the Dot B program, a number of themes emerged through the students’ responses. The themes included references to stress reduction, the management of emotions, present moment awareness, meta-cognition, self-regulation, and attention.

**Stress Management:** less stress, calming, relaxation, harmony, better sleep

**Meta-cognition:** awareness of thinking, stepping back from thinking, control of thinking

**Harnessing Attention:** focus, attention, concentration, present moment awareness

**Present Moment Awareness:** awareness of surroundings, feelings, body sensations, in sync

**Self-Regulation:** anger, fear, nervous, grief, sadness, worry, responding vs reacting

### **Stress Reduction**

The strongest theme was the role that the mindfulness-based strategies played in stress reduction. A number of the students commented on their capacity to calm themselves when stressed. For example, S11 shared that when he does mindfulness-based strategies they help them to realize that he is feeling stressed. In his words: “I really see how tired I am and how stressed I feel”, and S5 finds that “mindfulness is helpful as it helps me to relax when I was stressed” and S8 finds that the Dot B strategies “helped me to stay calm”. Similarly, S15 sees mindfulness as a helpful approach “for calming myself down when I am in a situation that I cannot get out of.” Students’ perceptions of the value of Dot B in reducing stress levels resonates strongly with much of the research in this area, which identifies stress as one of the core benefits of different mindfulness-based interventions (Semple *et al.*, 2017).

### **Meta-Cognition**

Central to students’ capacity to apply mindfulness to stress reduction was their capacity to become metacognitive, meaning that they are aware of their thinking, and have the capacity to manage their thinking. A number of the students commented on the nature of thinking, their capacity to step back from thinking, their ability to control their thinking, and the ways in which this is helpful for them in their decision-making processes. For example, S9 shared, “I think mindfulness is about what you are thinking about – so if you close your eyes - you look at your thinking and what goes through your mind”. S3 adds that “when the thoughts come up, I just let them come up and I stay at the bus stop”. Overall, there is this sense that an awareness of the thoughts, and thinking, led to a capacity to manage thinking. Indeed, improvements in metacognition was identified by a study at Bangor University (Sanger & Dorjee, 2016) as a key outcome of mindfulness training with adolescents and they cited the potential for increased metacognition to influence improvements in academic performance and well-being.

### **Harnessing Attention**

In addition to their ability to manage thinking, several students commented on the role of mindfulness in their capacity to harness their attention. For example, S17 shared that “mindfulness helps you to concentrate on one thing and eliminates everything else”. Students

volunteered some of the strategies that they found particularly helpful in honing their attention. S15 mentioned, “the mind buses help me getting hold of my thoughts and not getting distracted or preoccupied with what I was thinking or what I was doing”. The students’ comments reflect the outcomes of a number of similar studies (Semple *et al*, 2017), and in a study with adolescents in the US (Liehr & Diaz, 2010) eighty-three percent of students identified improvements in attention as being one of the benefits of a school-based training.

### **Present Moment Awareness**

The role of mindfulness in helping the students to be in the present moment was raised by several students. S16 shares: “I think mindfulness is about being aware of anything that might be of importance at the time”. S4 took this idea of awareness a step further, and spoke of the role of mindfulness training in enabling him to “be in sync with everything in life”. The advantage of being in the present moment in a school context was commented on by S2, who shared that mindfulness “helped me to be present when doing speaking presentations or tests”. A qualitative study carried out by Hennelly (2011) on the effectiveness of Dot B found similar results among adolescents in the UK, where students found the training helpful for being in the present moment.

### **Emotional and Behavioral Regulation**

A number of students commented on the role that the Dot B program played in their ability to manage strong emotions or emotional states. Several emotions or states were identified as ones that could be alleviated by mindfulness, including fear, grief, anger, agitation, and worry. For example, S5 shared: “When something scary is going on I use mindfulness to help me to relax”. In addition, S14 mentioned that “if I am ever worried, I can do mindfulness and everything will be done”. Another student S8 raised the role of mindfulness in helping her to cope with grief: “It helped me with the passing of my bunny”. Overall, there was a sense that engagement with the Dot B training enabled the students to shift from reactive modes of thinking and behaving to more measured responses, which allowed them to stay in touch with themselves and not to lose themselves when upset. S6 sums this up with “I found mindfulness useful because it helped me to step back a bit and respond instead of reacting”. Indeed, this comment sums up the overall purpose of Dot B, which according to Chris Cullen is “to promote the capacity to respond rather than react” (cited in Simpson, 2017, p.11).

### **What specific strategies are you finding beneficial?**

Overall, the students identified a good number of the Dot B strategies as useful in a range of situations. The strategy that was mentioned most often was the 7-11, and it was credited with being a valuable source of immediate relief when stressed or when emotional. For example, S1 notes, “when I am angry, I use the 7-11 to calm myself down”. Rather than identify a single strategy, a number of students identified that combinations of strategies were useful, when they need to be calm, or concentrated, or when they need to come back to themselves. S4 shares “I like the 7-11 and the FOFBOC. They are useful when I am angry and stressed with someone or something. It can calm me down and let me be in the moment”.

Additional strategies that were mentioned, albeit less than the others, were the beditation, and the thought buses, and the 15-minute meditation. The beditation was identified as helpful with both sleeping, relaxation, and for recuperation after sports. For example, S14 says “The

thing that was most useful was the beditation because I had problems going to bed and now, I can sleep finally”. In addition, the thought buses proved instrumental in enabling a few students to step back from their thinking. For example, S15 shares that “the mind buses really help me getting hold of my thoughts and not getting distracted or preoccupied with what I was thinking or what I was doing”. Noticeably few students referred to the seated meditation as useful to them on a daily basis. Those that did focused on the seated meditations that involved visualization. One of the reasons for this was suggested by S13 who shared, “I think breathing was one of the most important things we did but also boring”. He continued with “in time it got more interesting as you could visualize different things, such as the clouds drifting by or buses”. Having something visual to focus on seemed important.

### **How might you use mindfulness in the future?**

Overall, for the future students commented that they were most likely to use mindfulness-based approaches for coping with stress. There was a sense that they would be encountering more stress in the future and that this training was preparing them to cope with this. For example, S7 said, “I can use it in the future life because I will have stress with other things – and I enjoyed doing it”. The strategies mentioned most often by the students that they would find useful in the future were the 7-11, and the Dot B. For example, S13 shared, “In the future one thing I would do would be the 7-11 and the Dot B as they help me to calm down”. Explanations given as to why these strategies were the favorites, centered on the fact that they were short, easy, to use, and useful in an emergency or when they would need to focus.

Interestingly few students commented on the usefulness of the Dot B training for relationships or the development of social skills. This may have to do with the fact that, for the most part, the training focusses on the student as an individual. As Simpson (2017) has identified, it places minimal emphasis on the social sphere, and on the inter-relationships between people. In saying that, it needs to be acknowledged that this study was carried out with the eight-week Dot B program, as opposed to the updated nine-week program version, which places more of an emphasis on empathy, compassion and interpersonal communication.

### **Conclusion**

Overall, students’ experiences of the program were positive and beneficial. Students commented, in depth, on the value of the training in relation to their capacity to manage stress, to step back from their thinking, to harness their attention, to regulate their emotions, and to experience a greater degree of present moment awareness. They identified a number of ways in which they were already using a variety of strategies, including the Dot B and the 7-11. They found these practices helpful for a range of purposes both in school and outside of school. In general, they seemed to value short practices over longer practices, as they could implement them at any given moment to find calm, to focus, and to reduce stress. Overall, students commented little on the social benefits of the Dot B mindfulness training, which indicates a need to focus on this important aspect in future trainings and, potentially, in a follow up research study.

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