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# THE 5th INTERNATIONAL CONFERENCE

# MANDAKH-2022

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**Theme:** Digital Transition and Sustainable Development

**Venue:** Ballroom, 2nd floor, Holiday Inn Ulaanbaatar

**Date and time:** May 27, 2022, 08:30 – 18:00

| | |
|---|---|
| **08:30 - 09:00** | REGISTRATION |
| **09:00 - 09:20** | **OPENING SPEECH**<br>Nanjid.G, Professor, The President, Mandakh University<br>Dr.Regdel.D, The President, The Mongolian Academy of Sciences |
| **MORNING SESSION:**<br>**Moderator:** Dr.Gantsetseg.S, Associate Professor, Lecturer, Mandakh University<br>Lkhamdulam.G, Lecturer, Mandakh University | |
| **09:20 - 09:35** | **Integrating Quantitative and Qualitative Approaches to Assess Wintertime Illness-related Absenteeism and its Direct and Indirect Costs among the Private Sector in Ulaanbaatar**<br>Mandukhai.G, Director of Zaigal Research Institute, Mongolia<br>Dr.Narantsetseg.A, Associate Professor, Mandakh University, Mongolia<br>Clarence Wigfall, Claremont Graduate University, USA<br>Alex Heikens, United Nations Children Fund, Mongolia<br>Moiltmaa.S, United Nations Children Fund, Mongolia<br>David Warburton, University of Southern California, USA |
| **09:35 - 09:50** | **Fe and Ni Alloys with Improved Mechanical Properties**<br>Dr.Andrew Kostryzhev, University of Queensland, Australia |
| **09:50 - 10:05** | **Peregrine Assessment of Student Learning Results of Mongolian Schools: 2012-2022 Academic Years**<br>Alimaa.J, Director of Asia Pacific Operations, Peregrine Global Services<br>Odgerel.B, Client Services Manager, Peregrine Global Services |
| **10:05 - 10:20** | **A Sphere Packing Approach to Cost Volume Profit Analysis**<br>Dr.Enkhbat.R, The Mongolian Academy of Sciences, Mongolia<br>Dr.Tungalag.N, National University of Mongolia, Mongolia |
| **10:20 - 10:35** | **Differentiated Instruction in English Classrooms**<br>Tsengelmaa.Ts, Lecturer, National University of Mongolia, Mongolia<br>Ulziinaran.A, Lecturer, National University of Mongolia, Mongolia |
| **10:35 - 10:55** | DISCUSSION |
| **10:55 - 11:15** | COFFEE BREAK |
| **11:15 - 11:30** | **Understanding the Effects of Personalized Online Advertising on Host Website**<br>Nomin.Ts, Lecturer, Mandakh University, Mongolia<br>Dr.Davaasuren.B, Professor, National University of Mongolia, Mongolia<br>Dr.Enkh-Amgalan.L, Professor, Mandakh University, Mongolia |
| **11:30 - 11:45** | **Market Distance and Household Income: Quasi-Experimental Evidence from Mongolia**<br>Tseveenjav.L, Director of Cooperation and Dissemination Division, National Statistics Office of Mongolia, Mongolia |
| **11:45 - 12:00** | **Studying the Impact of Injecting Hydrogen into an Existing Natural Gas Pipelines: Decompression Analysis**<br>Dr.Alhoush Elshahomi, Pipelines Planning and Assessment Engineer, Jemena, Australia |
| **12:00 - 12:15** | **The use of Artificial Intelligence and Data Science in Research: On the Example of Institute of Mathematics and Digital Technology**<br>Otgonsuvd.B, The Mongolian Academy of Sciences, Mongolia<br>Dr.Uuganbaatar.D, The Mongolian Academy of Sciences, Mongolia |
| **12:15 - 12:30** | **The Influence of Risk Management and Good Corporate Governance on the Financial Performance: Infrastructure Sector Companies**<br>Dr.Alfiyatul Qomariyah, Airlangga University, Indonesia<br>Ranthy Saffanah Dewi, Airlangga University, Indonesia |
| **12:30 - 12:50** | DISCUSSION |

| | |
|---|---|
| **12:50 - 13:00** | **AWARDING CEREMONY**<br>Dr.Turbadrakh.Ch, Associate Professor, General Chair of Organizing Committee<br>Dr.Enkh-Amgalan.L, Professor, Co-Chair of Organizing Committee<br>Dr.Narantsetseg.A, Associate Professor, Program Chair of Organizng Committee |
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| **AFTERNOON SESSION**<br>**Moderator:** Nomin.Ts, Lecturer, Mandakh University<br>Baatartsogt.B, Lecturer Mandakh University | |
| **14:00 - 14:15** | **Tax Avoidance and Governance Quality: Evidence from Mongolia**<br>Tsetsegdelger.E, National University of Mongolia, Mongolia<br>Dr.Altan-Erdene.B, National University of Mongolia, Mongolia |
| **14:15 - 14:30** | **Facilitating Characteristics of 21st Century Foreign Language Learners in Myanmar**<br>Dr.Ya Min Aung, Assistant Director, Department of Teacher Education, Naypyitaw, Myanmar |
| **14:30 - 14:45** | **Current Situation of the Digital Economy and its Future Trends**<br>Dansranbavuu.L, Lecturer, Mandakh University, Mongolia<br>Gantulga.J, Lecturer, Mandakh University, Mongolia |
| **14:45 - 15:00** | **Sociolinguistic Study of Language Use of Social Media Users in Mongolia**<br>Dr.Enkhmaa.B, Senior Lecturer, University of Finance and Economics, Mongolia<br>Azzaya.D, Senior Lecturer, University of Finance and Economics, Mongolia |
| **15:00 - 15:15** | **Analysis of E-Learning Success Factors: The Mediating Role of Intention to Use**<br>Sumjidmaa.T, Mongolian University of Science and Technology, Mongolia<br>Dr.Oyuntungalag.B, Associate Professor, Mongolian University of Science and Technology, Mongolia<br>Mungunzul.M, Mongolian University of Life Sciences, Mongolia |
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| **15:35 - 15:55** | COFFEE BREAK |
| **15:55 - 16:10** | **Experiment Results on Curd Pressing and Cutting Equipment**<br>Amgalanzul.J, Mongolian University of Life Sciences, Mongolia<br>Dr.Tuya.N, National University of Mongolia, Mongolia<br>Dr.Tuvshinjargal.D, Lecturer, Mandakh University, Mongolia<br>Dr.Baatarkhuu.D, Mongolian University of Life Sciences, Mongolia |
| **16:10 - 16:25** | **The Impact of Customer Trust on Delivery Service Reuse Intentions**<br>Gerelmaa.B, Gyeongsang National University, South Korea<br>Dr.Khongorzul.G, Gyeongsang National University, South Korea<br>Dr.Wonjong Kim, Gyeongsang National University, South Korea |
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| **16:40 - 16:55** | **Digitalization of Tax Dispute Resolution: A Case Study in Mongolia**<br>Tsevelmaa.D, Senior Lecturer, Mandakh University, Mongolia<br>Enkh-Otgon.G, Lecturer, Mandakh University, Mongolia<br>Missuri.B, Nanjing University, China |
| **16:55 - 17:10** | **Circumstances of Road Signs along Roads in Tourism Industry**<br>Sodnomzul.D, Mongolian University of Science and Technology, Mongolia |
| **17:10 - 17:30** | DISCUSSION |
| **17:30 - 17:40** | **AWARDING CEREMONY**<br>Dr.Turbadrakh.Ch, Associate Professor, General Chair of Organizing Committee<br>Dr.Enkh-Amgalan.L, Professor, Co-Chair of Organizing Committee<br>Dr.Narantsetseg.A, Associate Professor, Program Chair of Organizng Committee |
| **17:40 - 18:00** | **CLOSING SPEECH**<br>Dr.Enkh-Amgalan.L, Professor, Vice-President of Research Affairs, Mandakh University |

**CONTENTS**

# THE INFLUENCE OF RISK MANAGEMENT AND GOOD CORPORATE GOVERNANCE ON THE FINANCIAL PERFORMANCE: INFRASTRUCTURE SECTOR COMPANIES

Alfiyatul Qomariyah[1,a] , Ranthy Saffanah Dewi[2,b]

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**Abstract.** This study was conducted to examine the effect of implementing risk management and Good Corporate Governance (GCG) on the financial performance of companies in the infrastructure sector. The sample used is the infrastructure sector companies listed on the Indonesia Stock Exchange 2016-2019. Samples were taken using the purposive sampling method, and the final total selection was 119 companies. The analysis technique used is multiple linear regression analysis processed using the SPSS application. The results showed that all risk management proxies significantly affected financial performance. Meanwhile, the GCG proxy shows different results for each of its components.

**Keywords:** Risk Management, Good Corporate Governance, Financial Performance

## INTRODUCTION

Along with the times, civilization continues to experience increased competition and technological advances in various sectors. The company continues to develop business strategies to achieve a competitive advantage. This situation requires company management to manage its business activities more effectively and efficiently. Agyapong (2020) states that financial performance is one of the essentials goals that must be evaluated frequently [1]. Ali et al. (2020) explain that good financial performance indicates a company's success in achieving goals that must be maintained and improved continuously [2]. The good and bad financial performance of a company can certainly be influenced by several things, such as the company's risk and the governance mechanisms applied (Ali et al, 2020) [2].

A rapidly changing environment and increasingly complex corporate strategies contribute to a higher level of risk. Faisal et al (2017) argue that companies must be able to prevent all the bad consequences of existing risks [3]. When risk in a company is not managed effectively, it will have a negative impact on financial performance (Rehman et al, 2021) [4]. Shou et al (2018) mention that broad risk management needs to be adopted by companies to address the increased risk [5]. The application of risk management is needed to anticipate the company's failure as a result of various adverse risks. Agyapong (2020) stated that the type of risk that is considered the most serious is a financial risk [1]. There are three main types of potential risks faced by companies, namely credit risk, liquidity risk, and operational risk (Chernobai et al, 2021) [6].

Along with this, the era of sustainable development also requires all companies to be able to run a good, transparent, open and accountable management system. One of the governance mechanisms that can be used to maximize financial performance is through the application of the concept of Good Corporate Governance (GCG). According to The National Committee for Governing Policy (KNKG), the implementation of adequate governance can help companies to create an atmosphere of healthy and conducive business competition [7]. The implementation of a good corporate governance system has a significant impact on the economic sector (Assenga et al, 2018) [8]. Kumari & Pattanayak (2017) explain that the poor quality of the governance system in a company can be the initial factor in weakening financial health and company failure [9]. Weak implementation of governance has also become the main driver of various detrimental cases in the company's business such as fraud, embezzlement, burglary, and corruption committed by the internal management department, which is still common in several companies, especially in Indonesia. The survey results from The Asian Corporate Governance Association (ACGA) in 2020 also show that the index of the implementation of corporate governance in Indonesia is still at the lowest level compared to the governance index of several other countries in the Asia Pacific region [10].

Table 1. Ranking of Corporate Governance in Asia

| № | Country | Score [%] |
|---|---|---|
| 1 | Australia | 74,7 |
| 2 | Hong Kong | 63,5 |
| 3 | Singapore | 63,2 |
| 4 | Taiwan | 62,2 |
| 5 | Malaysia | 59,5 |
| 6 | Japan | 59,3 |
| 7 | India | 58,2 |
| 8 | Thailand | 56,6 |
| 9 | Korea | 52,9 |
| 10 | China | 43,0 |
| 11 | Philippines | 39,0 |
| 12 | Indonesia | 33,6 |

*Source: www.acga.asia.org*

According to Saifi (2019), one of the strategies that can be taken to realize the success of the GCG mechanism is through the formation of a board of commissioners and an audit committee within the company's supervisory ranks [11]. The realization of the GCG system is one of the main factors driving profitable growth and development for a company in the long term. Herbert & Agwor (2021) also argues that the renewal of the corporate governance model continues to be improved by all business people in order to defend themselves in global competition, especially for public companies [12].

In Indonesia, risk management and GCG continue to influence several public policy debates related to the development of company performance. Various positive responses from many industrial sectors were present to encourage the application of these two things, including their application in going public. This is reaffirmed in the regulations issued by The Financial Services Authority (OJK) regarding the implementation of GCG and the establishment of a risk management committee, each of which is stated in regulation Number: 21/POJK.04/2015 [13] and regulation Number: 6/PJOK.04/2021 [14]. OJK has required the implementation of risk management and good governance principles for all types of public companies, including public companies in the infrastructure sector. Public companies also contribute significantly to the performance of the national economy. Therefore, this public company should be managed effectively and efficiently.

In almost all countries including Indonesia, the infrastructure sector is also one of the corporate sectors with conditions that are difficult to predict. According to Saifi (2019), changes in this sector have big waves, where the ups and downs of growth can occur quickly and at large [11]. The magnitude of the opportunities and threats from business risks in the infrastructure sector must of course be balanced with the existence of an adequate governance system and risk management process. Due to poor governance systems along with failure to manage risks in the infrastructure industry, it can certainly result in financial losses, reputational damage, and lost business opportunities in the future.

The main theory used in this research is agency theory. This theory explains the existence of an agency relationship that occurs in a company as a result of the separation of duties that occurs between company owners and management (Jensen & Meckling, 1976) [15]. Several previous studies have also been carried out regarding the influence that occurs between risk management and GCG on the company's financial performance. Kiptoo et al (2021) prove that GCG has a significant effect on the performance of insurance companies in Kenya from the period 2013 to 2018 [16]. However, it is undeniable that this research is contrary to several other studies, such as the research conducted by Kurniati (2019) [17]. In addition, research conducted by Musallam (2020) shows a positive influence of the application of risk management and GCG on the company's financial performance [18]. This is in line with the results of research conducted by Mardiana et al (2018) [19]; Maulidar et al (2020) [20]; and Haryetti et al (2021) [21]. Risk management as proxied by three types of company risk shows a negative influence on company performance. This means that the greater the risk the company has, the worse the company's performance will be. So that the application of risk management is very necessary for a company to minimize the impact of these risks. However, the results of this study are inversely proportional to the results of research conducted by Marjohan (2021) [22]. Where the research shows that risk management has no effect while GCG is proven to have a significant influence on the financial performance of the consumer goods sector industry.

Based on the background that has been presented and the inconsistency of the results in some literature, this study tries to conduct a more in-depth study on **"The Influence of the Implementation of Risk Management and the Realization of Good Corporate Governance on the Financial Performance of Infrastructure Sector Companies"**.

## LITERATURE REVIEW

### Agency theory

The theory was first introduced by Jensen and Meckling in 1976. This theory describes an agency relationship when one or more company owners (principals) assign tasks and authority to management (agent) to carry out the company's management and decision-making processes. Company management is obliged to provide and convey all company information to company owners. However, according to Eisenhardt (1989), each individual will carry out his duties and responsibilities based on the three innate characteristics of humans themselves who tend to prioritize their personal interests [23]. This can trigger an agency conflict between the two related parties (Saifi, 2019) [11]. Basically, principals and agents have different positions, interests, and backgrounds. Kiptoo et al (2021) argue that the application of good corporate governance principles is very important to do in order to foster a sense of trust from a company owner in the behavior of company management [16]. The concept of good governance will encourage company leaders to maximize company performance and meet all stakeholders in a sustainable, fair, and transparent manner.

Agency theory also explains that there are different risk preferences between shareholders and company managers (Tao & Hutchinson, 2013) [24]. As a result, if a company does not have a special mechanism for managing its risks, then management as risk-averse can reject profitable (but riskier) projects that are likely to be attractive to shareholders because they have the opportunity to generate increased returns. Therefore, the application of risk management is also very necessary to be implemented in a company in order to fulfill the objectives related to the fulfillment of the rights of stakeholders. The risk management and GCG framework will focus on improving company performance by improving the quality of decision-making and alternative measures used to reduce company losses.

### Stakeholder Theory

Stakeholder theory is a theory that explains the company's obligations and responsibilities to fulfill the rights of all company stakeholders (Freeman, 1984) [25]. The stakeholders referred to in this theory include employees, the community, company owners, and other parties who have an interest in the company. This theory has the aim of creating corporate awareness of its responsibilities to each stakeholder. Because basically, the company does not only carry out operational activities to fulfill internal interests but also has to contribute to and benefit the community in the surrounding environment (Freeman, 1984) [25].

Stakeholder theory is closely related to efforts to maintain financial performance. Where financial performance is one of the company's components that is useful as capital for fulfilling the rights of stakeholders, either as a form of return on investment or as a source of financing for all company activities. This theory ultimately motivates the company's management to be able to maximize the company's performance in order to fulfill the rights of stakeholders. This can certainly be realized through the implementation of risk management and adequate corporate governance (Hunjra et al, 2020) [26]. Management will be able to ensure that all company activities have been carried out in accordance with the objectives and provide assurance that losses from company risks have been minimized (Assenga et al, 2018) [8].

## HYPOTHESIS DEVELOPMENT

### The Influence of Risk

also motivates the company's management to optimize the quality of transparency in the disclosure of company information. The high proportion of independent commissioners in a company is considered to be able to encourage management independence to ensure that the policies made are in accordance with the interests of stakeholders (Alfarooque et al, 2019) [31]. Thus, there is a positive influence given by the independent board of commissioners. on the company's **Management on Financial Performance**

Every operational activity of the company will not be separated from the possibility of the emergence of company risk. The wider the goals set by a company, the greater the risks that may arise. Soetopo et al., (2017) state that risk can occur as a result of the uncertainty of circumstances, the complexity of competition, to information gaps related to the emergence of agency conflicts [27]. Hunjra et al (2020) state that companies really need to adopt a risk management framework approach in order to minimize losses that can be caused by company risks [26]. Risk management is designed to ensure that all risks in each company activity have been handled carefully by responsible company management. According to Susilo and Kaho (2018), companies will be better at controlling their risks when the company implements a risk management system [28]. Therefore, the application of effective risk management is said to have an effect on the company's financial performance. The application of risk management in public companies, especially the infrastructure sector industry, is carried out against several types of risks, while the types of risks used in this study are: *credit risk, liquidity risk, and operational risk.* Credit risk arises as a result of the loss of part or all of the benefits of credit that have not been paid on time (Afif and Mahardika, 2019) [29]. Liquidity risk is one type of risk that can be experienced by the company due to the company's inability to meet its maturing obligations. Liquidity risk management through the implementation of risk management is important to ensure that all company obligations can be fulfilled in full and on time. Liquidity risk can be measured through the size of the liquidity ratio. While operational risk arises as a result of inaccuracies in internal processes and the existence of several other events that can affect the company's operations. Operational risk can generally be assessed through the ratio of the effectiveness of operating expenses to operating income. This ratio is one of the financial ratios that can be used to determine the level of efficiency and company's ability to carry out activities or operational activities. Based on that, this study proposes that:

H1a: Credit Risk has a negative effect on Financial Performance

H1b: Liquidity Risk has a positive effect on Financial Performance

H1c: Operational Risk has a negative effect on Financial Performance

**The Influence of GCG on Financial Performance**

Pangestu (2021) explains that the ineffectiveness of a set of rules governing the company's business activities has the potential to trigger acts of fraud and abuse of authority [30]. Poor or inadequate implementation of corporate governance is a source of risk that can harm the company. Musallaam (2020) states that the implementation of GCG principles is considered to be able to reduce agency problems that occur in a company [18]. The concept of GCG is very important to be applied in order to anticipate gaps and individual conflicts that may arise. The GCG mechanism used in this study is the size of the board of commissioners, independent commissioners, and the audit committee.

The number of commissioners indirectly has an influence on the level of company performance. In line with the view based on agency theory, supervision of management performance will increase the company's operational effectiveness. The more members of the board of commissioners who are active in a company, the greater the effort that can be given and made to minimize opportunistic behavior from the company's management (Ali et al, 2020) [2]. In addition, the board of commissioners can also share their knowledge and experience with company management in order to improve the effectiveness of company performance (Herbert & Agwor, 2021) [12]. Thus, there is a positive influence from the board of commissioners on the company's financial performance.

Assenga et al (2018) explained that the independent board of commissioners is tasked with supervising and providing input to managers regarding the process of fulfilling all stakeholder interests [8]. The existence of an independent board of commissioners financial performance.

The audit committee is also responsible for supervising the company's internal control processes. An understanding of the company's internal control is very necessary for the audit committee to help detect the existence of various frauds and abuses of management authority that can harm the company (Jensen and Meckling, 1976) [15]. Indirectly, the optimal function of the audit committee will affect the company's performance improvement. This is because the existence of an audit committee function in a company is considered to be able to reduce the existence of information asymmetry

(Aslam & Haron, 2020) [32]. Thus, the audit committee positively influences financial performance of the organization. Based on the above explanation, this study proposes that:

H2a : The board of commissioners has a positive effect on financial performance

H2b : independent commissioners have a positive effect on financial performance

H2c : The audit committee has a positive effect on financial performance

## RESEARCH FRAMEWORK

Based on the hypothesis development, the conceptual framework in this study is as follows:

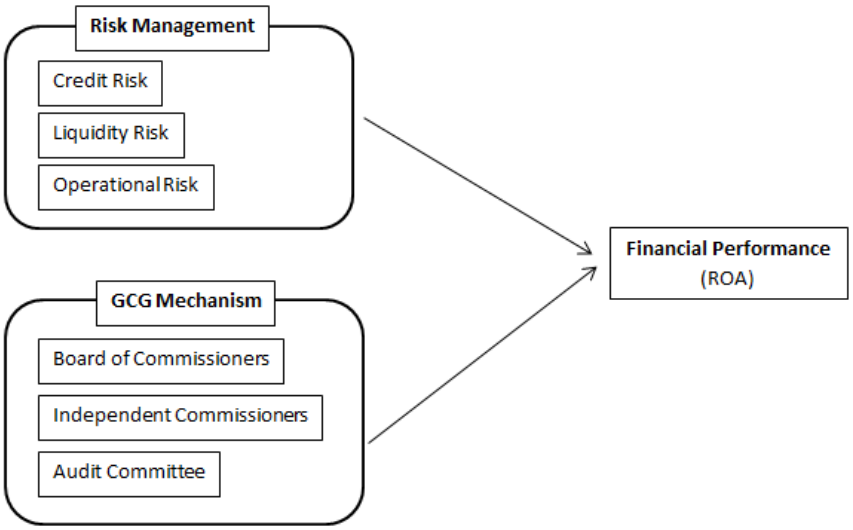


Figure 1. Research Framework

## RESEARCH METHOD

This research was conducted using a quantitative approach, with risk management and *GCG* as the dependent variable and financial performance as the dependent variable. The population used is public companies in the infrastructure sector listed on the Indonesia Stock Exchange (IDX) for the 2016-2019 period. The sample selection was carried out using the *purposive sampling method* so that the final total sample was 119 companies. Which will be processed through descriptive statistical analysis techniques and multiple linear regression tests with the help of the SPSS application.

### Measurements

Credit risk is one of the company's risks arising from the company's clients who are unable to meet their maturing obligations. According to Mardiana *et al,*. (2018), the measurement used for the credit risk variable is through the NPL ratio obtained from the comparison of total non-performing loans to total loans provided by the company [19].

Liquidity risk is a type of corporate risk that arises as a result of the company's inability to meet its maturing obligations. According to Fitriana and Febrianto (2018), the measurement used for the liquidity risk variable is through the *current ratio* (CR), which is one of the company's liquidity ratios [33]. The ratio is obtained from the division of total current assets to total current liabilities.

Operational risk is a type of company risk that arises as a result of inaccuracies in internal processes or other similar events which can affect the company's operations. According to Mardiana *et al,*. (2018), this risk is calculated through the ratio or comparison of operating expenses to operating income (BOPO) [19].

The board of commissioners is one part of the company that has the duty and responsibility to carry out the supervisory function of all company activities. In addition, the board of commissioners is also tasked with providing advice and advice to the board of directors regarding the process of carrying out their duties. According to Aziz & Hartono (2017), the measurement used for the variable of the

board of commissioners is through the total members of the board of commissioners who are still active in the company [34].

An independent commissioner is defined as a member of the board of commissioners who do not have a special relationship with other commissioners. Saifi (2019) explains that the independent board of commissioners is tasked with supervising and providing input to managers regarding the process of fulfilling all *stakeholders* [11]. According to Aziz and Hartono (2017), the measurement used to measure the independent board of commissioners variable is through the proportion of the total independent commissioners to the total of all commissioners in the company [34].

The audit committee is one part of the company whose job is to supervise the company's internal control. According to Aziz and Hartono (2017), the measurement used in this study is through the total number of audit committee members who are still active in the company [34].

According to Ekinci & Poyraz (2019), financial performance variables can be measured through the ratio of *Return on Assets* (ROA) [35]. The calculation formula that can be used for this variable is profit before tax divided by total assets.

## RESULTS AND DISCUSSION

The results of descriptive statistic analysis are shown in Table 2. Table 2 shows the descriptive values of each variables.

Table 2. Statistical Results

| | N | MIN. | MAX. | MEAN | STDV |
|---|---|---|---|---|---|
| Credit Risk | 119 | .0000 | 2.0883 | .404267 | .3546280 |
| Liquidity Risk | 119 | .0002 | 4.2860 | 1.209817 | .8572612 |
| Operational Risk | 119 | .0005 | 75.5186 | 1.726513 | 6.9400137 |
| Commissioners | 119 | 1 | 10 | 4.62 | 1.987 |
| Independent Com. | 119 | .0000 | .8000 | .394874 | .1337968 |
| Audit Committee | 119 | 2 | 6 | 3.22 | .727 |
| Financial Performance | 119 | -2.0840 | .6480 | -.007845 | .2633497 |

*Source: Processed data, 2022*

### Hypothesis Testing

The results of hypothesis testing for this study are shown in Table 3:

Table 3. Linear Regression Test Results

| | *Unstandardized Coefficients* | | *Standardized Coefficients* | | |
|---|---|---|---|---|---|
| **Model** | **B** | **Std. Error** | **Beta** | **T** | **Sig.** |
| (Constant) | **-.204** | .121 | | -1.685 | .095 |
| Credit Risk | **-.103** | .060 | -.139* | -1.730 | .086 |
| Liquidity Risk | **.055** | .025 | .180** | 2.205 | .029 |
| Operational Risk | **-.016** | .003 | -.425*** | -5.415 | .000 |
| Commissioners | **.013** | .011 | .097 | 1.134 | .259 |
| Independent Com. | **-.151** | .153 | -.077 | -.988 | .326 |
| Audit Committee | **.062** | .030 | .170* | 2.068 | .041 |

*Source: Processed data, 2022*

Based on the results of the regression test as shown in table, the regression equation formula that can be used in this study is:

*ROA = - 0.204 - 0.103 (NPL) + 0.055 (CR) - 0.016 (BOPO) + 0.013 (DK) - 0.151 (DKI) + 0.062(KA) + e*

Furthermore, the coefficient of determination test is done to analyze the ability or strength of the regression model used. The value of the coefficient of determination shows a number between zero

and one. The results of the coefficient of determination test from this study can be seen in the following table.

Table 4. Coefficient of Determination Test Results

| *R* | *R Square* | *Adjusted R Square* | *Std. Error of the Estimate* |
|---|---|---|---|
| .605[a] | .366 | **.332** | .2153103 |

*Source: Processed data, 2022*

Based on the Table 4, the coefficient value from the test results of the coefficient of determination as shown by *Adjusted R Square* is 0.332 or 33.2%. So it can be concluded that the ability of the independent variable used is proven to be able to explain financial performance or ROA of 33.2%. Where the remaining 66.8% is a contribution from other factors outside of research on financial performance.

As a conclusion from the above results, credit risk and operational risk have a negative influence on financial performance, while liquidity risk has a positive influence on it. Based on that, hypotheses 1a, 1b, and 1c are supported. Furthermore, for the GCG, only the audit committee that has a positive influence on financial performance, while commissioners and independent commissioner show insignificant influences. Therefore, hypothesis 2c is supported, while hypotheses 2a and 2b are not supported.

## CONCLUSION

Based on the explanation from the previous chapter regarding the results obtained, it can be concluded that the three variables that represent the application of risk management are proven to have a significant effect on financial performance. In fact, the risk is an uncertain situation whose existence can be detrimental to the company if it is not managed properly and correctly. The concept of risk management is very important to be applied and continues to be developed in achieving every company's goals, especially with regard to credit risk, liquidity risk, and operational risk.

In addition, the results of the study also show that *Good Corporate Governance* has different effects on each individual. its components. The results of the study prove that GCG tends to have a positive effect on financial performance through a supervisory mechanism by the audit committee. The monitoring function is indeed considered to have the potential to reduce conflicts of interest that can harm the company. Because the supervisory board will provide many benefits to the company. However, the number or size of the supervisory board also needs to be considered and adjusted to the needs of the company. because in essence, excessive board size will have the potential to reduce or even eliminate its benefits.

## LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

This study is far from perfect and of course it has some limitations, one of which is the result of testing the coefficient of determination which is still relatively low. This can be seen from the *adjusted R square* which shows a value of 0.332 or 33.2%. Therefore, it can be concluded that the ability of the regression model used is still relatively weak. So there are other factors outside the research variable of 66.8% which indicates that there is still a lot to be re-understood about financial performance, risk management practices, and the realization of GCG in a broader view.

For companies, governments, and other policy makers, the results of this study can be used as a reference in the preparation and evaluation of policies related to the implementation of corporate risk management and the realization of *good corporate governance.*

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# PEREGRINE ASSESSMENT OF STUDENT LEARNING RESULTS OF MONGOLIAN SCHOOLS: 2012-2022 ACADEMIC YEARS

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## PEREGRINE ASSESSMENT EXAMS

Peregrine online direct assessment service with comprehensive exam solution for Global Business Education is:

- Designed for program-level assessment
- Based on the common core knowledge or Common Professional Components (CPC) within a discipline (Business in this case)
- Designed to fully meet the standards and requirements of programmatic accreditation (ACBSP (in this case), IACBE, and AACSB)
- Completed by more than 500 institutions of higher education located in 45 countries
- Pre-test (inbound) and post-test (outbound) construct provides internal and external comparison results
- Made available in 2011to the Mongolian business schools: Peregrine assessment exam test banks were translated into the Mongolian language
- Updated version made available in 2019: the Mongolian test bank translation updated

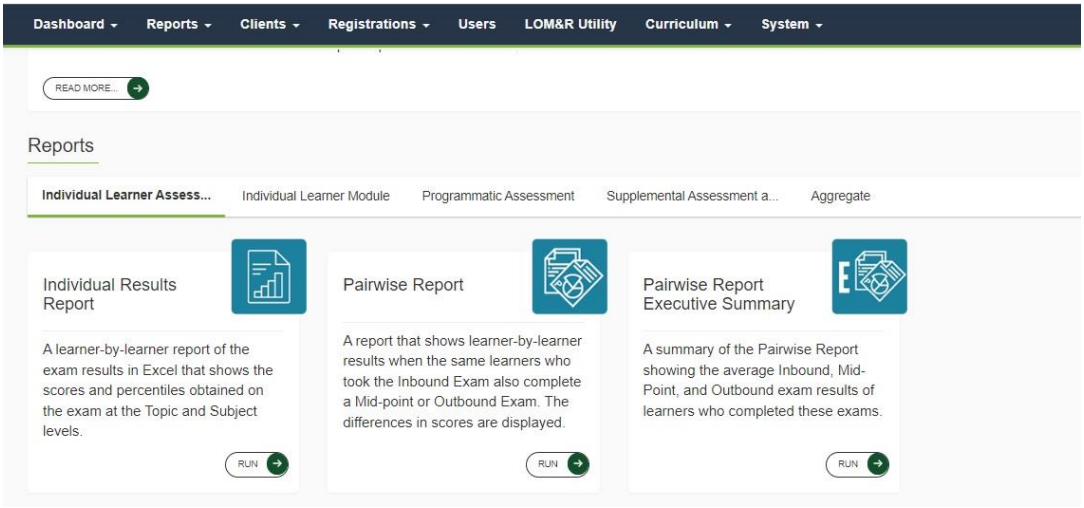
In addition, the fully online assessment can be used at the undergraduate and graduate levels. The solution provides the business and management programs with comprehensive reporting along with an efficient, user-friendly interface where all learner information is managed and tracked, and all the reports, data and analytics are generated.

## ROBUST REPORTING

Business and management programs use summative reports for academic benchmarking, learning outcomes evaluation, and accreditation submissions. Also, generate a variety of reports that cover all assessment intervals. Reports include both individual student results in Excel format and summative and comparative reports in PDF, HTML, or Excel formats.

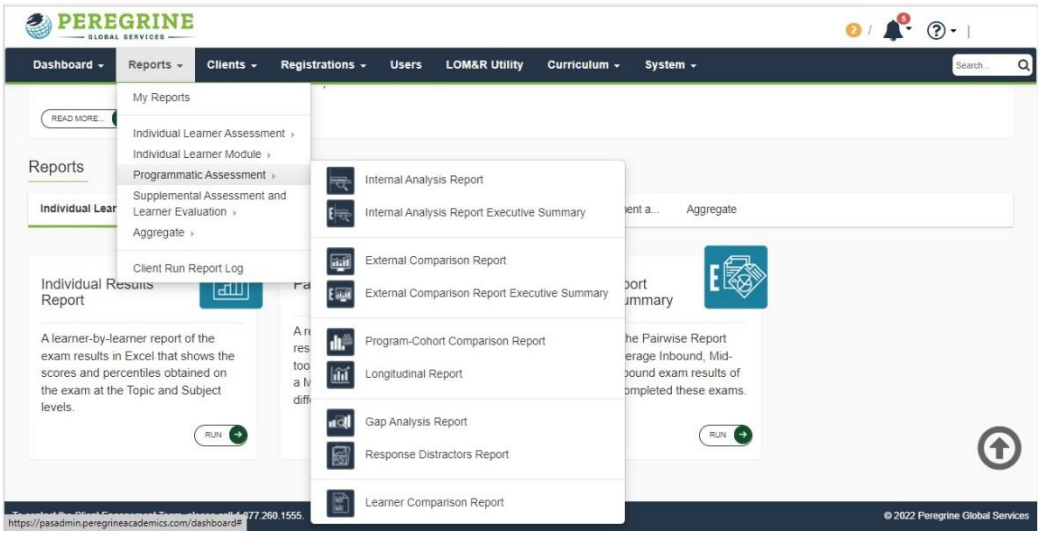
## CUSTOMIZABLE & FLEXIBLE

Our online assessments allow you to select the topics that apply to your program's goals and intended learning outcomes. We recommend 4-6 topics for associate level, 10-12 topics for bachelor level, and 8-10 topics for master level exams. The exam will generate ten questions per topic.



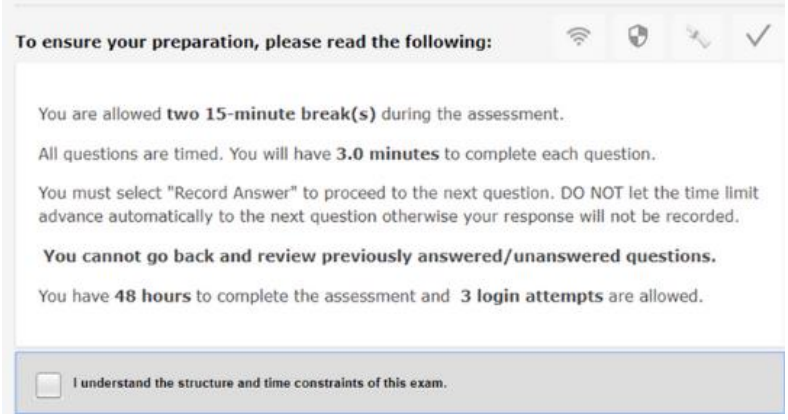

## 24/7 CLIENT ADMIN ACCESS

Peregrine provides you with 24/7 access to Client Admin. The Client Admin allows you to track student progress, manage student registrations, and generate both individual and summative reports.




## ADVANCED SECURITY FEATURES

With our advanced security features, the exam does not require a proctor. Features include randomized question selection, disabled copy/paste content, timed questions, and monitored screen activity. Items are served one-at-a-time without the option to backtrack, and a student can access the exam three times within a 48-hour window.



## THE INBOUND AND OUTBOUND APPROACH

The Inbound-Outbound Approach is equivalent to a pre/post-test approach to assessment. In this approach, students complete an inbound exam early in the program and then an outbound exam toward the end of the program. The comparison of inbound and outbound exam scores is the direct measure of learning. A detailed analysis of the exam results is used for evaluating learning outcomes.

The assessment solution is typically included within a course. The inbound exam is included as a course activity early in the academic program. Completion of the outbound exam is one of the last course activities before program completion.

The difference in Inbound and Outbound exam scores, both cumulatively and individually, is your direct measure of learning and the academic institution's value. Program-level and course-level learning outcomes are evaluated, analyzed, and assessed using the detailed reporting provided with the service.

## THE DATA

2011-2012: Initial beta-testing in Mongolia, Institute of Finance and Economics and Ider University

2012-2013: Additional testing with more Mongolian institutions of higher education

2022-present: Ongoing testing with about 14 Mongolian institutions of higher education

- Graduate and Undergraduate, GBE, Mongolia, Outbound Exams
- By Topic and Subjects
  - Sample size (number of exams/questions AND number of client schools)
  - Number Offered and Number Correct
  - Mean
  - Standard Deviation

## METHODOLOGY

The exam is customized by topic selection to align with the program of study. Different test banks are used for undergraduate and graduate exams. 10 questions per topic.

Most Bachelor's exams include all 12 topics (120 questions).

Most graduate exams include 6-10 topics (60-100 questions).

The test banks used within the US and those used outside the US are similar, but not identical.

An exam with online, randomized question selection.

Administered either as a homework assignment or as a proctored exam within a classroom.

Outbound exams are incentivized to motivate the students to do their best on the exam (graded on a normed scale).

Summative and comparative reports are used for internal program evaluation and externally for academic benchmarking.

## THE EXAM SAMPLE

**Exam results for the 2012-2022 years (January-May).**

Results are segregated and summarized based on institutions located in Mongolia.

Sample (number of questions offered per topic), mean, and standard deviation calculated for each topic/subtopic for the bachelor's academic degree level.

## RESULTS

Table 1. The Samples: Number of Schools in Mongolia, (Academic Years 2012-2022)

| Location | Bachelors Academic Programs | |
|---|---|---|
| | Number of Schools and Exams in the Pool for Inbound Exams | Number of Schools and Exams in the Pool for Outbound Exams |
| Mongolia | 12 Schools<br>5,069 Exams | 12 Schools<br>6,598 Exams |

## INBOUND AND OUTBOUND EXAM RESULT COMPARISONS USED TO ESTABLISH RELEVANCY OF THE PERCENT DATA CHANGE

### Inbound And Outbound Exam Result Comparisons Used to Establish Relevancy of The Percent Data Change

Table 2. Inbound and Outbound Exam Results: Bachelor Levels

| | Bachelor's Student Results t-test Value | | | | | |
|---|---|---|---|---|---|---|
| | 2012-2015 | | 2015-2018 | | 2018-2022 | |
| | Inbound | Outbound | Inbound | Outbound | Inbound | Outbound |
| Mongolian Schools | 39.62 | 43.89 | 34.87 | 37.36 | 32.65 | 39.93 |
| Mongolian Public Schools | 43.87 | 46.64 | 36.95 | 38.51 | 35.93 | 40.23 |
| Mongolian Private Schools | 38.41 | 41.92 | 31.50 | 36.07 | 31.72 | 39.42 |

Table 3. The Percent Change Between Inbound and Outbound Exam Results

| | Bachelor's Student Results Percent Change | | |
|---|---|---|---|
| | 2012-2015 | 2015-2018 | 2018-2022 |
| Mongolian Schools | 10.7% | 7.1% | 22.3% |
| Mongolian Public Schools | 6.3% | 4.2% | 12% |
| Mongolian Private Schools | 9% | 14.5% | 24% |

Table 4. The percent change between the Mongolian public schools and private schools' averages

| | Bachelor's Student Results: Outbound Percent Change: Public vs. Private | | |
|---|---|---|---|
| | 2012-2015 | 2015-2018 | 2018-2022 |
| Mongolian Public Schools vs. Mongolian Private Schools | 11% | 7% | 2% |

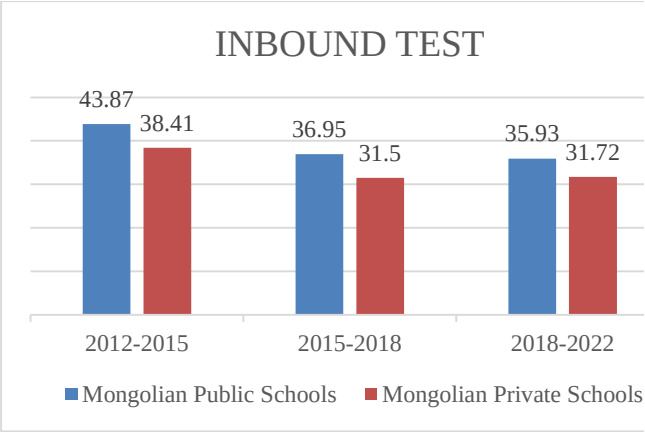



Figure 1. Inbound Results t-Test Value

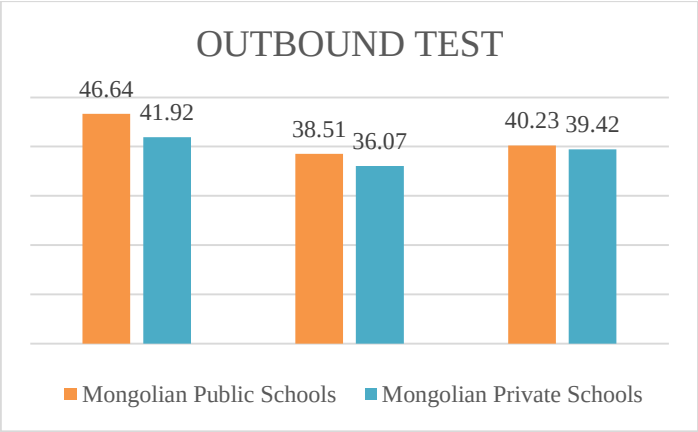
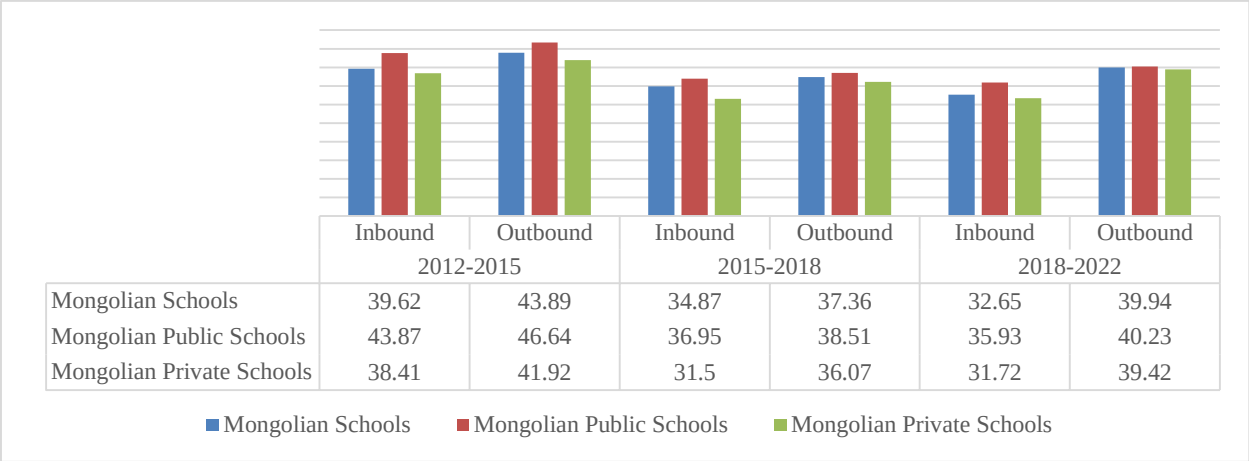



Figure 2. Outbound Results t-Test Value




| | 2012-2015 | | 2015-2018 | | 2018-2022 | |
|---|---|---|---|---|---|---|
| | Inbound | Outbound | Inbound | Outbound | Inbound | Outbound |
| Mongolian Schools | 39.62 | 43.89 | 34.87 | 37.36 | 32.65 | 39.94 |
| Mongolian Public Schools | 43.87 | 46.64 | 36.95 | 38.51 | 35.93 | 40.23 |
| Mongolian Private Schools | 38.41 | 41.92 | 31.5 | 36.07 | 31.72 | 39.42 |

Figure 3. Inbound And Outbound Exam Results t-Test Value

The overall trend for the Inbound Exam results for the Mongolian Schools Average (39.62, 34.87, and 32.65) and the Public Schools Averages (43.87, 36.95, 35.93) are decreasing, hope the data will recover in the following data periods for these two indicators, unlike the Private Schools Average (38.41, 31.5, 31.72) which continues to stay the same.

For the Outbound Exam Results, all three averages are downward sloping. Mongolian Schools Average (43.89, 37.36, and 39.94), the Public Schools Average (46.64, 38.51, and 40.23) and the Private Schools Average (41.92, 36.07, 39.42). The data does hit a bottom in the 2015-2018 period and recover slightly in the third data period.

Table 5. Mongolian vs. US Outbound Exam Score Comparison: Chi-Square Analyses (2012-2022)

| Topics | Mongolian Mean Score | US Mean Score |
|---|---|---|
| Accounting | 45.42 | 57.12 |
| Business Ethics | 44.28 | 60.54 |
| Business Finance | 39.46 | 45.37 |
| Business Integration and Strategic Management | 37.79 | 54.97 |
| Business Leadership | 42.56 | 55.70 |
| Economics | 38.34 | 47.61 |
| Economics: Macroeconomics | 36.35 | 43.31 |
| Economics: Microeconomics | 40.31 | 52.43 |
| Global Dimensions of Business | 40.55 | 51.12 |
| Information Management Systems | 39.14 | 61.18 |
| Legal Environment of Business | 41.41 | 57.80 |
| Management | 41.51 | 52.21 |
| Management: Human Resource Management | 45.32 | 62.15 |
| Management: Operations/Production Management | 38.24 | 48.08 |
| Management: Organizational Behavior | 41.00 | 57.17 |
| Marketing | 43.02 | 45.13 |
| Quantitative Research Techniques and Statistics | 38.97 | 41.55 |

The test banks used for the exam between the U.S. and Outside U.S. are different, cannot perform t-test evaluations. Instead, Chi-square analysis is used to evaluate overall exam score comparisons.

## CONCLUSION

There are many factors that would shed light and explain the results and the trends that we see in the data. Some of the factors could be attributed to the structural changes and reforms that have been taking place not only in the higher education but also in the secondary (k-12) education system of Mongolia, especially in the data since 2015-2018. Another contributing factor could be related to global pandemic that took hold in 2020-2021 academic years and still ongoing, such as issues related to transition to digital instructional environment, infrastructure, technology, distance, etc. We could conduct survey analysis among participating higher educational institutions to understand better and identify additional factors that have contributed to the results we observed.

There are some further analyses we need to conduct especially deep dive analyses looking at individual programs and performance of students by topic and subject levels. Also, using Peregrine's Response Distractor report could provide some additional insight in identifying the gaps in student knowledge and performance.

# SOCIOLINGUISTIC STUDY OF LANGUAGE USE OF SOCIAL MEDIA USERS IN MONGOLIA

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**Abstract.** With the advance of information technology in pre and post pandemic era, language pattern and language behavior of social media users have been considerably altered. Language used in online social media has caught the interest and drawn the attention of linguists and psychologists who are concerned about its potential impacts on language and social psychology. This article provides a brief introduction to Internet linguistics and Internet language, as well as an examination of the linguistic and interactional features of internet mediated communication, specifically Facebook in Mongolia. Analyzing the communication materials of social media users from the perspective of sociolinguistics we tried to compare and evaluate the language use, language change, language preference and attitude of Mongolian social media users. The study employed approaches popular in sociolinguistics and Internet linguistics, such as comparison, sampling and empirical analysis.

**Keywords:** sociolinguistics, mainstream social media, Facebook users, communicative behavior, internet language, language change, language attitude

## INTRODUCTION

The use of social media for variable purposes such as for communication, for education, for entertainment, for research, for business is now very typical all around the world. Since the pandemic in 2019, an extensive use of social media networks ,in particular, Facebook has resulted in boom of active and engaged users to overcome unpleasant social distancing. In terms of sociolinguistic analysis, we wanted to look at how the language use of social network users is changing among the active Facebook users in Mongolia. In total 30 subjects aged 17-25 have been observed throughout a year between 2020-2021 at University of Finance and Economics.

## THE START OF INTERNET LINGUISTICS

In this era of globalization, people all over the world use the internet as an information and communication platform in their daily lives. The Internet has evolved into the principal means of interacting and distributing information, representing current human activities, language, culture, and social realities since its inception in the late 1960s. According to statistics for January 2022, the internet is used by 4.95 billion people (65 percent of the global population).

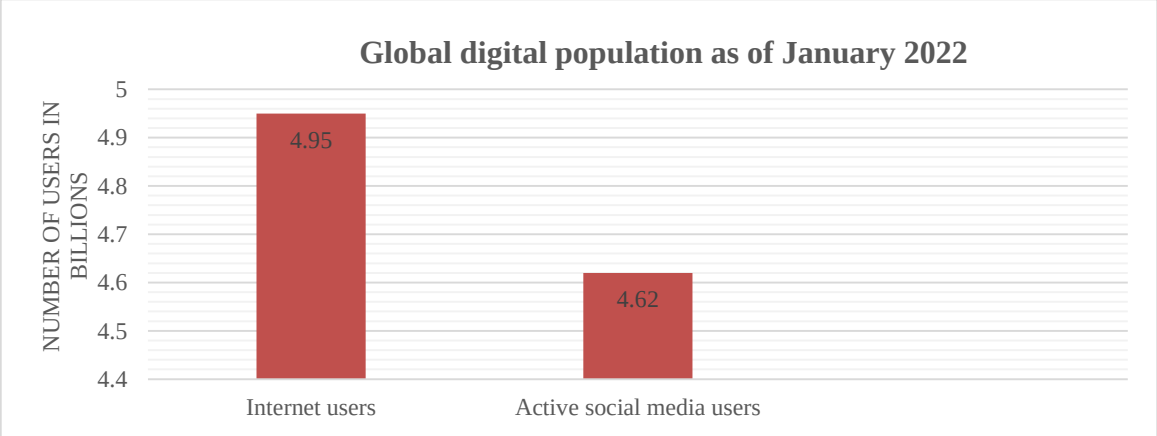


Figure 1. Global digital population *Source:https://www.statista.com*

Varieties of texts have emerged based on the age, gender, social position, interests, scope, and subject of communication of people engaging over the Internet, resulting in a new version of the language known as the Internet language in many languages throughout the world. The language of the Internet has significantly altered the use of the language of those who communicate with it, influencing social psychology and resulting in the emergence of Internet linguistics, a sub-field of linguistics. Internet linguistics investigate the characteristics of communicative language use in the internet world and its impact on standard languages and dialects. It is a new branch of linguistics with its own concepts and theories, founded on the boundary of social linguistics, textual linguistics, and psychological linguistics that studies the language choices and attitudes of social media users, as well as changes in their way of thinking.

The study of Internet language use began in the mid-1990s in the United Kingdom and the United States. The term "Internet linguistics" was first coined in 2001 by the British scholar, linguist David Crystal, who laid the foundations of the Internet linguistics. David Crystal has identified four main perspectives namely the sociolinguistic perspective, educational perspective, the stylistic perspective and applied perspective [1].

He examined the textual form of online communication and mostly refutes the widely held belief that internet communication is illiterate and has harmed language standards. He agrees that much of it is nonstandard, playful, and highly deviant in bending the usual rules of language, tolerant, typographic and spelling errors, and full of new words. However, he is thrilled by its variety and creativity and takes a very optimistic view, predicting that the new phenomenon of Netspeak would fundamentally change the way we think about language because it is a linguistic diversity. The internet world is called “Cyberspace” and the people using the online communication are “Netizens” (the word is

easily associated with “citizens”). The language we use in the net is “Netspeak” or Netlish, Weblish (associated with “English”). [2].

## LANGUAGE OF SOCIAL MEDIA USERS IN MONGOLIA

Internet has become especially popular among the younger generation who has been brought up in the world of information and technology. Although the internet was brought in 1996, the usage of internet has grown tremendously in Mongolia.

One of the latest phenomenon among the youth of Mongolia is the use of the social networking system. According to the Face book use statistics, there are 2.9 million Face book users in Mongolia and about 55% of the users are the youth between the ages 18-35.

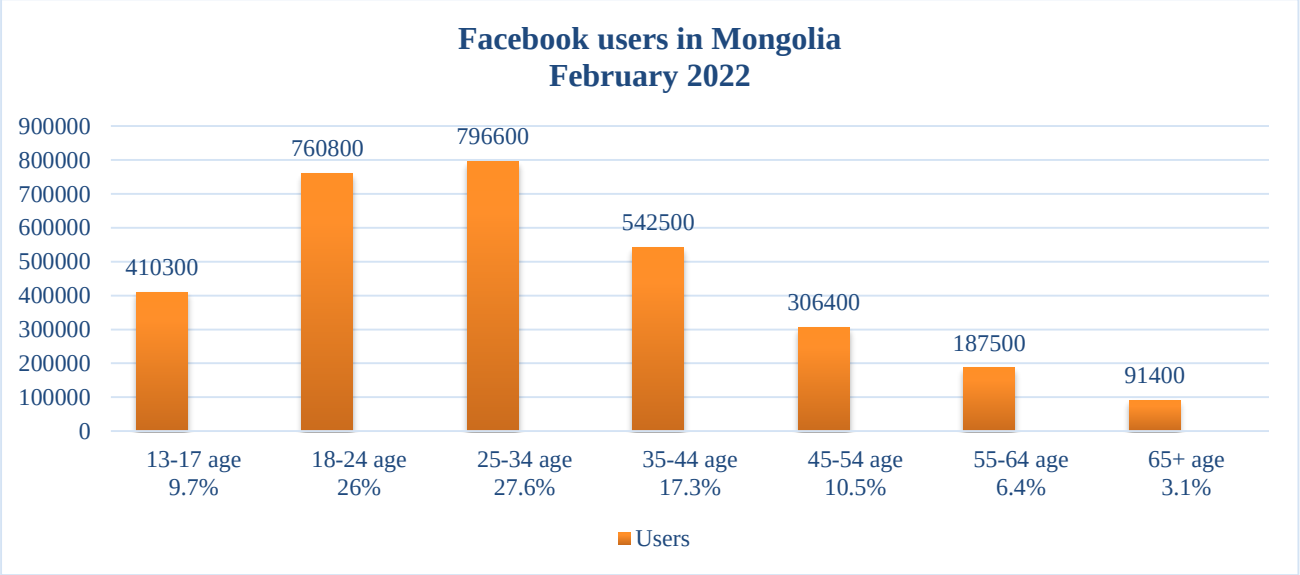


Figure 2. Facebook users in Mongolia

*Source: https://napoleoncat.com/stats/facebook-users-in-mongolia/2022/02*

The increasing use of social media in Mongolia, particularly in urban areas, reveals that it has significant advantages over traditional ways of communication. For example, you can communicate for free indefinitely using computers, mobile phones, and mobile devices connected to the network, you can freely express your thoughts, you can communicate with numerous people at the same time and listen to their opinions, and so on. According to Sherry Turkle, the unrecognized character of its customer and distance are the primary factors that contribute to the distinctiveness of electronic communication and lead to its acceptability. The members of the connection might join at any time and the relationship can be quickly broken under the effect of these variables. This has resulted in the Internet's language being free, basic, and vulgar. [3].

Because the Internet is continually growing, it meets the interests of people who are always looking for something new, resulting in the creation of new linguistic tones and styles. Majority of Facebook users are high school and university students and young people, and their purpose differs from that of Twitter users in that they communicate with one another, share information about school activities, and exchange opinions, chat, share photos, music, and so on for leisure time [4].

Because e-communication is abstract and imaginary, it allows people to create new images, express themselves in new ways and change their identities. F. O. Smirnov "You can simply change your gender, age, country, and even become an alien on the Internet, which is impossible in real life." All of this can be accomplished with a few mouse clicks" [5]. According to our studies the IDs or identities used by teenagers, is more likely to use unusual names, nick names and English words. For instance, Jungle angel, Rose, Smile, Sunshine, Perfect Ganaa, Jesika, Erka, Drunk Ninja, Crazy girl, Snoopy, God of love, Naked Mongolian etc. As indicated by the comments and interactions they post, the purpose of these users’ online groupings is not to be businesslike, but to be free to socialize, spend

free time, and play online. They write as if they were conversing in person. It is written without following spelling rules, and there are numerous attempts to reflect the feelings of the person in the conversation in writing. For example, writing such as sain uu beeeb, oroin meeend, etc., express intimacy and soften the word. The fact that a lot of foreign words are involved in writing affects the spoken language.

Internet users in Mongolia use all types of shortened forms simply to combat the limiting conditions of the medium itself. The use of syntactically-reduced forms; acronyms, symbols, word clippings, emoticons are therefore purely for practical reasons – they reduce the time and effect necessary to communicate and they make the users unique by letting them use all sorts of nonstandard language forms. Internet- mediated- communication has changed the language and created the new form of Mongolian Internet language. We can find the many similar variants of English internet language in Mongolian internet language.

1. Abbreviation - a shortening of a word, for example "CYA" for "see you". The use of abbreviations is motivated more by a desire to imitate one another, to stand out, and to capture people's attention than by a desire to achieve a specific purpose. Teenagers make up the vast majority of those who write in this style. In Mongolian internet communication the users use all sort of English internet language as well as the Mongolian variant of English internet language. For example, “so sa” for sonin saihan yu baina? Which means what’s up “Nz” for “naiz - friend”, “ntr” for “ene ter”, “naag” for “namaig”, “Thx” for “thank you”, “sn” for “sain – good ”.
2. Acronyms - a subset of abbreviations and are formed from the initial components of a word. Examples of common acronyms include "LOL" for "laugh out loud" or "lots of love" and "BTW" for "by the way". There are also combinations of both, like "CYL8R" for "see you later". In Mongolian “t1” for “ teneg”,
3. Punctuation, capitalizations and other symbols
4. Such features are commonly used for emphasis or stress. Periods or exclamation marks may be used repeatedly for emphasis, such as "....." "!!!!!!!!!!", “??????????” and “aaaaaaaaaaaaan” Grammatical punctuation rules are also relaxed on the Internet. "E-mail" may simply be expressed as "email", and apostrophes can be dropped so that "John's book" becomes "johns book". Examples of capitalizations include "STOP IT", which can convey a stronger emotion of annoyance as opposed to "stop it". Bold, underline and italics are also used to indicate stress.
5. Onomatopoeic and/or stylized spellings
6. The usage of repeated letters is frequent in the Mongolian and English Internet languages. Letters in the English Internet language frequently overlap, yet just a few letters are utilized to identify particular meanings. Words like cooooooool - cool, greaaaaat - terrific, and wooooooow - wow, for example, are employed to increase strength and express emotions. The overlap of letters is often reflected in vowels in the English and Mongolian Internet languages.
7. Onomatopoeic spellings have also become popularized on the Internet. One well-known example is "hahaha", “kkkkkkkk”, “he he he he”, “hihihi” to indicate "laughter". Onomatopoeic spellings are very language specific. For instance, in Spanish, laughter will be spelt as "jajaja" instead. Cooooooooooool, zooooo zooooo for za za.
8. Nonstandard writing- write as you are speaking. For instance, yajiigaambee, gesiimaa, yavii, orii, bichas, yadiin,
9. Keyboard-generated emoticons and smileys
10. Emoticons are generally found in web forums, instant messengers and online games. They are culture-specific and certain emoticons are only found in some languages but not in others. For example, the Japanese equivalent of emoticons, kaomoji (literally "face marks"), focus on the eyes instead of the mouth as in Western emoticons. They are also meant to be read right-side up, for example, ^_^ as opposed to sideways, =). Most importantly, compared to emoticons used in Western cultures such as the United States, kaomoji or face emoticons play a very

distinct social role in online discourse in Japanese language. (Katsuno, Hirofumi and Christine R. Yano, 2002)

11. Use of foreign words
12. “My nz” – my English word for minii, tnx for bayarlalaa, busy, like, great,awesome, soundtrack, song, artist and many other words. Use the English words adding Mongolian language suffixes. To google – guugeldeh, to share- sheirleh, to scan – scandeh, to print – printerleh or print hiih. Professor S. Galsan is concerned about the state of the Mongolian language in the twenty-first century, stating that in the twenty-first century, a living triangle of native language, foreign language, and language use has emerged, which appears to be fundamentally different from all historical periods. The demands of human existence, culture, science, and business will be touched by a wave of globalization in the twenty-first century, not simply within the relations of a few countries. This has had an impact on language use, particularly as words have grown more interwoven than ever before, and strong languages such as English have become "aggressive" in other languages [6]

## SUMMARY

1. The ambiguity of language use on the Internet has an impact on social psychology and people's attitudes toward their own language and culture, decreasing the social value of their native language. Due to their age, level of education, and maturity, teenagers' language attitudes on social media are lower than adults' language attitudes. It is more likely that they are attempting to be distinctive and copy one another while writing in Mongolian using either the Latin or Cyrillic alphabets rather than saving time by not following the exact spelling standards. On the other hand, they don't appear to understand the rules of appropriate language, therefore they write in a unique style to conceal their weakness.
2. Mongolian Internet language features a range of acronyms, unusual spelling, and the variety of emoji present in other internet languages, and the impact of English can be seen in the use of internet language.
3. Social networking, as a social phenomenon, has an impact on people's communication and psychology.
4. Language becomes enriched with newly invented expressions, thus enables users more linguistically intelligible and perceptive to a certain extent depending on the complexity and connotations of invented words.

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# FACILITATING CHARACTERISTICS OF 21ST CENTURY FOREIGN LANGUAGE LEARNERS IN MYANMAR

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**Abstract.** The world changes from time to time and today society changes as knowledge age and globalization. In the globalized society, the main foundation of the nation is education because education is a process to transform the information to other and transmit knowledge from one generation to the next generation. Because of changing information and knowledge age, we need the human resources that are fixed with 21 st century skills. Moreover, teaching and learning language is important because language is an essential tool of communication and we can share most information with the use of language. Among them, English is the first widely used world –language. Therefore, this paper aims to study "Facilitating 21 st century Characteristics of Foreign language learners in Myanmar'. The Objectives of this study are ; to depict the current implementation of basic education sector in Myanmar, to delineate the challenges when facilitating 21 st century characteristics of learning foreign language in Myanmar; and to portray the ways to overcome the challenges of facilitating 21 st century skills of learning foreign language in Myanmar. In this paper, literature review analysis is applied to achieve the results. This study can be effective for the readers and the other countries that face similar challenges. Moreover, this study can share the knowledge and idea for the further research of facilitating 21st century characteristics of foreign language learners.

**Keywords:** 21st century skills, foreign language, curriculum, assessment

## INTRODUCTION

During the successive wave of globalization, education has been transformed positively which can create highly qualified human resources who are fixed with 21 st century skills. The educational atmosphere which transform positively can be defined as those that developed innovative system that can prepare students to processes essential skills which lead to successful life in 21 st century. Moreover, classrooms become the center for the student engagement for the 21 st century (Karen A.Tesik ,2017). Therefore, leaders should endeavor to facilitate characteristics of 21 st century skills for the learners. The school is the place that can produce the successful leader of the nation. As a matter of facts, the schools should have the attributes that can set up successful students who can do well with the rapidly changes of the world. In addition, learning must go beyond the mastery of subject matter and include 21 st century knowledge and skills such as critical thinking, communication, collaboration and technology literacy (AACTE, 2010). Moreover, this includes application of technology to support more robust instructional robust method and understanding the relationship between content, pedagogy and technology. Among them, facilitating characteristics of 21 st century skill is important for learning foreign language. Foreign language (FL) education in the 21st century ought to respond to the changing and growing needs of students so that they are fully prepared for effective functioning in the modern world(M.Baran-Łucarz & A.Klimas, 2020). Teaching methodology we teach and learn languages and subject and communication have been changed with the advent of technology, globalization and digitalization. The analysis of the relevant documents reveals that 21st century skills are a very broad concept and may be related to thinking processes, such as creativity, problem solving, decision making, self-knowledge, critical thinking, accessing and analyzing information. They may also embrace learning employability skills, for example ICT literacy, agility and adaptability, cooperation, communication, motivation or time management. Finally, social skills, i.e. citizenship, responsibility, cultural awareness, are also categorized as 21 st century skills (Voogt & Roblin, 2010). Owing to an increasing interest in the implementation and the integration of 21st century skills into the curriculum, it has been postulated that they should be treated as cross-curricular skills underpinning the core subjects and leading to the development of wider key competences (Voogt &Roblin 2010). This approach requires substantial changes in teaching methods and assessment, as well as initial training and continuing professional development of teachers (European Commission, 2019). When changing knowledge age and 21 st centuries, the implementation of curricula and core-curricula, the use of ICT, assessment, the role of teachers are important to fulfill 21 st centuries' skills. In this paper, the focus is 21 st century skills and the current implementation of basic education sector in Myanmar, the issues that found in facilitating 21st century skills for foreign language learning skills and the ways to solve these problems.

## 21ST CENTURY SKILLS

In recent days, schooling should be helping to equip young people with the tools they need to become engaged thinkers, resilient and resourceful learners, creative problem solvers and active members of their communities. A wide range of skills and related dispositions are regularly considered as vital for schooling in the 21st century, including thinking skills, social and emotional skills, and attitudinal skills. Silva (2008) notices, depending on the adopted perspective, 21st century skills have been called soft or interpersonal skills, applied or workforce skills, life and career skills or non-cognitive skills. While identifying the skill, there are the skills most often cited when referring to 21st century skills.

**Critical Thinking and Problem Solving**; It is effectively analyzing and evaluating evidence, arguments, claims and beliefs; solve different kinds of non-familiar problems in both conventional and innovative ways. More than ever, critical thinking appears to be an indispensable component of effective education in the 21st century; hence, teachers and policy makers tend to agree that it needs to be incorporated into the curricula, also in the context of foreign language teaching (Ketabi, Zabihi & Ghadiri, 2012).

**Communication**; It is articulating thoughts and ideas effectively using oral and written communication skills in a variety of forms and context. Communication is the skill of particular

relevance for language learners, yet in FL (foreign language) classrooms too little focus is placed on true communication.

**Collaboration**; It is demonstrating ability to work effectively and respectfully with diverse teams. Collaborative forms of work have been used in general, as well as foreign language education, for sometimes now but it was only recently that collaboration became 'an important outcome in its own rights rather than merely a means to teach and assess traditional academic content'. (Lai & Viering 2012)

**Creativity and Innovation;** It is use a wide range of idea creation techniques to create new and worthwhile ideas. Most people, however, intuitively understand what creativity is and are able to recognize creative achievements. In order to be called creative, such acts or products need to be not only new and original but also useful; additionally, they result from divergent thinking process including flexibility, fluency, originality and elaboration (Lai & Viering , 2012). Foreign Language Learning will undoubtedly be more successful when creativity is integrated into the process and students are encouraged to think outside of the box (Maley &Peachy 2015; Hurst et al. 2018).

Information Literacy, It is access and evaluate information critically and competently; manage the flow of information from a wide variety of sources. Media Literacy, It is an understanding of both how and why media messages are constructed; create media products by understanding and utilizing the most appropriate media creation tools, characteristics and conventions.

**ICT (Information, Communications, and Technology) Literacy**, It is using technology as a tool to research, organize, evaluate and communicate information. (AACTE, 2010).

## RESEARCH METHOD

In this paper, literature review analysis method is applied. The primary and secondary sources are obtained from official documents, books, reports and internet sources.

## DEFINITION OF KEY TERMS

1. **21st century skills** According to Silva (2009), there are hundred s of descriptors of the skills set, including life skills, workforce skills, interpersonal skills, applied skills and non-cognitive skills.
2. **Foreign Language** A language is considered foreign if it learned largely in the classroom and it is not spoken in the society where the teaching occur ( Aledine J.Moller and Theresa Catalano, 2015).
3. **Curriculum** The term curriculum refers to the lessons and academic content taught in a school or in a specific course or program. Curriculum is often defined as the courses offered by a school, but it is rarely used in such a general sense in schools (The glossary of education reform, 2015).
4. **Assessment** In education, the term assessment refers to the wide variety of methods or tools that educators use to evaluate, measure, and document the academic readiness, learning progress, skill acquisition, or educational needs of students (The glossary of education reform, 2015).

## PURPOSE OF THE STUDY

The purposes of the study are as follows;

(1) To depict the current implementation of basic education sector in Myanmar,

(2) To delineate the challenges when facilitating 21 st century characteristics of learning foreign language in Myanmar;

(3) To portray the ways to overcome the challenges of facilitating 21 st century skills of learning foreign language in Myanmar.

## RESEARCH QUESTIONS OF THE STUDY

The research questions of the study are as follows;

(1) What are the current implementations of basic education sector in Myanmar?

(2) What are the challenges when facilitating 21st century characteristics of learning foreign language in Myanmar?

(3) How we can overcome the challenges while facilitating 21 st century skills of learning foreign language in Myanmar?

## FINDINGS

**Current Implementation of Basic Education Sector in Myanmar:** Myanmar is developing country and Myanmar Government is trying to develop in every area especially in education. MOE has developed conceptual framework for basic education reforms areas, access, quality and education, curriculum, student assessment and examination and, teacher education and management. Quality basic education curriculum is a critical building block for Myanmar's socio-economic development and it is an essential prerequisite for the provision of quality education and the improvement of student learning achievement. A key curriculum reform challenge is to develop and successfully implement a new basic education curriculum at primary, middle and high school levels that is more relevant to all students, thereby motivating them stay in school and complete basic education. The new curriculum must focus on 21st century skills, soft skills (including personal development and employability skills) and higher order thinking skills. Thus, 21st century skills must be developed in order to pave the way for the development of Myanmar society both at the national level and at the global level. So, these skills and themes become an integral part of the school curriculum and are to be designed for learning (i) through integrated study in all related areas and (ii) through specialized study as a separate area of learning. In addition, Myanmar government changes education system from 5:4: 2 to KG+, 5:4:3 and reforms curricula including English Curricula. Besides, the government set the plan to implement complementary and linked strategies and programmes. In this program, the government will also develop the curriculum which focuses on problem-solving and for nationalities' languages to support and uphold the languages, literature, culture, arts, customs, heritage and traditions of nationalities. In Myanmar, first hand language is Burmese and the second language is English. Therefore, learning English language as foreign language is the most widely than other language in Myanmar Education. English subject is a compulsory in Myanmar that students have to studies English from beginning of grade. Therefore, English curricula are changed and provide training programs for teachers to be better teaching and learning situations. In accordance with the changing curricula, Child –Centered Approach which encourage creativity, collaboration and communication and problem solving skills of students.

Moreover, Myanmar government initiated Comprehensive Education Sector Review in Myanmar in 2013 and endeavored to improve the quality of education college teachers by supporting EfEect project which was two –years initiative project cofounded by British Council and UK's Department for International Development (DFID). However, there is only a training program of new English curriculum for basic education schools teachers.

In recent days, technology is essential in teaching and learning because of knowledge age and the pandemic situation. Multimedia material is generally defined as the use of a combination of media forms, such as pictures and words, or animation and sound. These combinations can include as many forms as possible but must contain at least two to be called multimedia. Computer networks, learning management systems are currently the main platforms of delivery and preferred by both students and instructors. In 2016, the collaboration between Myanmar government, technological companies (Ericsson and Qualcomm), UNESCO, educational software developer and Columbia University had conducted to bring mobile technology into the classroom (Machmud, M. T.,et.al., 2021). The program provided knowledge, technical, and pedagogical support for teachers in applying mobile technology. Recently, the project already provides several infrastructures (such 3,100 tablets and 186 laptops for

teachers) and proper instructional training which is more than 270 hours. On the other hand, The Ministry of Education of Myanmar has an effort to improve society ICT skills by establishing 90 computer schools and informal certification programs.

Assessment in English language teaching and learning in school course two types of assessments is mainly practiced. One is formative assessment and another is summative assessment. The next focus of National Education Sector Plan under Ministry of Education in Myanmar is the accurate repetition of acquired content knowledge to a more balanced system that assesses student learning progress against national learning standards. This shift is in line with the international research that demonstrates the importance of monitoring a student's ability to engage in and complete complex thinking and problem-solving tasks and to develop self –learning skills. These are skills that students need for personal and professional development. They are also essential skills for a globally competitive workforce. The government set the plan to do the programs for the students' assessment and examinations. Program Components are as follows;

- National Assessment Policy to provide an umbrella framework for an integrated basic education assessment system for both classroom and school assessment
- Classroom level assessment to provide teachers and students with formative and summative assessment information about student learning achievement
- School-level assessment to help teachers to identify the class each student will be attending the following year
- Grade 5, Grade 9 and high school completion examinations to provide valid and reliable information regarding student achievement national sample-based assessment to provide useful evidence about the level of student achievement and identified curriculum areas
- Restructure of Department of Myanmar Examinations so that it has the human resources to successfully implement the basic education assessment reforms
- Capacity building and advocacy to enable MOE assessment officers to develop, deliver and maintain high-quality assessment and examination systems
- Development of assessment-related information and communication technology infrastructure to improve current work processes and provision of examinations related services
- Development of monitoring mechanisms to track achievements regarding Grade 5, Grade 9 and end- of-high school completion examinations and national sample-based assessments

**The Challenges when facilitating 21 st century characteristics of learning foreign language in Myanmar:** When teaching and learning a language, it is important to learn four skills, listening, speaking, reading and writing skills. In Myanmar, English is the second official language after Burmese language. While teaching English language in basic education in Myanmar, there are insufficient learning materials and resources. "To become a fluent speaker in English, learners need to be good listener first" (Suriya, V. 2019). Another challenge is lack of enough vocabularies among Myanmar students and unless the students are familiar with the meaning of words and phrases pronounced, they cannot catch up what the others say and the messages cannot be transmitted well and the communication is not valid successfully.

Dealing with speaking skills of English language, there are quite challenges in basic education in Myanmar. The first challenge is that there are insufficient media to practice for speaking skill in Myanmar's basic education schools. Another challenge is that some English teachers of Basic Education Schools in Myanmar is not fixed with their educational background (i.e., their specialization in university are not English). Therefore, some teachers have challenges because they are not too much skillful in vocabulary, pronunciation and grammar well. Besides, most old service teachers do not teach with updated teaching methodology. This is because of weakness of capacity training program for English teachers in basic education sector in Myanmar. Although, there are much proficient trainings for teachers in Higher Education level, there is only training for new curriculum in basic education sector. Additionally, the time for this training program is not enough. In the case of reading skills, there is too much influence of mother tongue because the students try to translate

the words instead of catching the concept. Moreover, there is no extensive reading time in Myanmar basic education schools. On the other hand, there is the challenge in writing is that most students could not think the ideas well. This is because most students are failing to have consistency and strong learning desires. Moreover, the resources for reading are not enough in schools. Furthermore, most students are familiar with grammatical rules; however; they are weak to do practice, the input skill, reading and that is the reason of poor in writing.

The other challenge when facilitating 21 st century skill for foreign language learning is that time management. Because English curricula in basic education sector in Myanmar are link with 2l century skills, the students are more interested in English more than before. However, it is difficult for time management because the English teaching time of daily schedule and weekly as a language for a long time in Myanmar and there is still have its effect. The next challenge is that the teacher cannot stop learning and it is important to have global awareness in order to catch with updated information and to be competent in 21 st century skills. On the other hand, lack of enthusiasm creates a mist of obstructions in them. They are finding English a hard discipline tries to out some shortcut ways and methods to pass English in public examinations because they find hardly interested in it.

**The Ways to Overcome Challenges faces When Facilitating 21 st century Characteristics of Learning Foreign Language in Basic Education Sector:** There are some solutions for challenges of facilitating 21st century characteristics for learning foreign language in Myanmar's basic education sector. First, Ministry should provide sufficient quality resources and materials to be effective in English Language learning. Appropriate tapes should be provided to get exposure and vital information not only about grammar and vocabulary but also about pronunciation, rhythm, intonation, pitch and stress. In addition, it is important for students should to practice enough listening tasks so that they would get chances for themselves to familiar with different linguistic patterns, accents and phrase patterns of English and vocabularies. Additionally, vocabularies which are essential in English listening can be enriched by using dictionary and thesaurus, plying word games, using flashcards and practicing new words in conservation. Again, the government should not only assist adequate teaching materials but also assign the teachers whose specialization was English in university to teach English. In addition, Ministry of Education should contribute proper capacity training program and the teachers should endeavor to create effective English language environment to practice and improve students' speaking skills. As well, the teachers should train the students to focus on skimming, scanning and intensive reading to improve reading skills. Moreover, to overcome the challenges of writing skills, the teachers should arouse the students' learning desires and the teachers should also have the awareness to continuous learning. In addition, the teachers should always give feedback of the students' writing drafts to develop central theme, the logical organization of content, and the creation of meaningful relationships among ideas and to learn various writing styles narrative, expository, persuasive, descriptive, business, and literary forms.

To conquer the other challenges such as insufficient time, the English teachers should teach the students with spare time (end of the school timetable). In order to teach English as a language, there should have proper materials and resources. On the other hand, the monitoring and supervision team should check the teachers' teaching styles and the students' learning outcomes to be effective in teaching and arouse the teachers' global awareness. And then, the teachers should make lesson preparation that is fixed with students' needs to foster the enthusiasm of the students' language learning. All in all, the students should balance the four standards input, output, language focus learning and fluency. In accordance with Nation and Newman (2009), there are four standards of language learning, meaning focus input (learning through listening and reading) , meaning focus output learning ( learning through speaking and writing ) , language –focus learning ( learning grammar, vocabulary, dialogues, pronunciation) and fluency development ( practicing skimming, writing synopsis and free –writing and listening to stories). To advance learner's language skills, there should be 15 minutes for listening and reading skills practice, 30 minutes for writing and speaking skills practice and 15 minutes for vocabulary, grammar and pronunciation if the learner limit the time one hour per a day. By facilitating 21 st century skills for foreign language learning and balancing

the four language learning, the student can upgrade their language skills and can get a chance to achieve qualified education and career advancement.

## CONCLUSION

In a nutshell, education serves as the main roles to develop the nation. To be more effective education, sharing ideas, knowledge and information among the countries is important. Thus, communication is the crucial role for sharing among the nations and English is the compulsory to learn. Not only having suitable resources, materials and training but also balancing the four language system can advance learners' foreign language skills. As a result, communication becomes effective and a nation can upgrade many areas with the international standards and can well –developed nation.

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# CURRENT SITUATIONS OF THE DIGITAL ECONOMY AND ITS FUTURE TRENDS

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**Abstract.** While some people narrowly understand the word "digital economy" as only digital numbers or electronics, it is a much broader concept in the real world. We can define a digital economy as a broad understanding of how to use the latest information technologies and technological tools in various fields of economics effectively. Also, it means transforming the economy into a completely different economy with the help of technology.

In the modern economy, all economic sectors are based on technology, such as domestic and international trade, services, education, medical activities and etc. The only way to make them more efficient, and more inclusive is through the digital economy. In other words, we see that the digital economy has become an integral part of any science and all economic sectors.

If a country successfully completes the digital transition and builds a digital economy effectively, then its labor productivity will increase many times, the cost of products and services will decrease, and finally, its whole economic efficiency will increase. On another side, the countries that have ignored digital transition and economic digitalization will become backward and lose their competitiveness at the global level. Today, a country's development is defined by data and technology rather than physical goods like wealth, money, and weapons. Therefore, many countries have redefined their development strategies, especially the digitalization policies of their economy in the latest few years.

The research has analyzed the relationship between the Digital Adoption Index (DAI), People's DAI, Business DAI, Government DAI, and GDP per capita using comparative data from 180 countries of the world. The result shows that there is a positive and direct correlation between the DAIs and GDP per capita. Also, it shows that innovation-based economic growth can be achieved if the country invests more in research and development and use its results and new technology effectively in our daily lives and economic sectors.

**Keyword:** digitalization, information technology, economic sectors, digital transition

## INTRODUCTION

Despite the fact that countries are trying to develop their economies in their own ways, finally, we understand that sustainable economic growth depends only on technological progress and digital transition in all economic sectors. However, still, the meaning and measurement of the digital economy are limited and unclear. Therefore, in order to define the digitalization level of the economy exactly and promote its level in the right direction, first, it is necessary to understand what a digital economy is. The following information shows that the situation is different in Mongolia, where each country aims to create and benefit from technological advances in all economic sectors.

The 2022 Budget Law of Mongolia approved the implementation of 1,424 projects and activities with a total budgeted cost of MNT 1,894.6 billion by its annex 2. The total estimated cost of these projects is MNT 6,292.7 billion. Another MNT 303.6 billion for 7 projects, which were contracted in previous years on a "build and transfer" concession agreement between the Government of Mongolia and private entities was approved for repayment in 2022. 88.2 percent of the total budgeted funds are planned to finance infrastructure projects to improve public services for its citizens, 7.5 percent for equipment financing to increase accessibility and quality of public and social services, 2.8 percent is planned to finance capital repairs and to increase the duration of buildings and structures, and 1.5 percent is planned to finance feasibility studies and drawings for public investment projects (Ministry of Finance, 2022).

In 2022, a total of MNT 1,894.6 billion public investment expenditure was approved, of which 25% was in education and science, 15.9% in road transport, 15.4% in construction and urban development, 6.2% in culture, 5.8% in health, and the remaining are in other economic sectors (Ministry of Finance, 2022). Planned investments in education and science are mainly dedicated to spending on building kid's facilities to improve accessibility to schooling and kindergarten servicing, with little focus on research and development or the digital transition activities of the country's economy. However, we see that such facilities are not very important in overcoming technological backwardness in the economic sectors of the country.

For the above-mentioned reasons, we have started this study in order to make the idea of digital transition more common in Mongolia, to define the effective ways to use technological advances in economic sectors more, etc.

## THE DIGITAL ECONOMY

The term "digital economy" is believed to have been initiated by Japanese researchers during the Japanese economic stagnation or recession of the 1990s. For example, Hayashi and Prescott concluded that the main reason for Japan's recession in the 1990s was not a lack or shortage of investment funds, but a low growth rate of productivity. So some Japanese researchers suggested that policy reforms to increase productivity may be needed, such as the broad use of digital technologies in all economic sectors (Hayashi & Prescott, 2002).

The digital economy is defined as a new social style in which not only technology and smart technology are interconnected, but also people who are connected through technology and work together as shared knowledge and creativity to bring social development and create more wealth (Tapscott, 1995). There are several other definitions of the digital economy. The core idea of the digital economy is, of course, the "digital industry," the information technology industry that creates digital products and services. The real "digital economy" is defined as "an economic output or product/service, which is made by using digital technology alone or in a certain percentage" (Bukht & Heeks, 2017).

The countries have become increasingly globalized and their people have started to share the concept of sustainable development. As the world's population, economy, and production grow at the same time, the demand for food and raw materials is increasing day by day, and more natural resources are required (B.Battomor, 2020). Due to human activities, the balance of nature is being distorted, the frequency of global warming and climate disasters is increasing, and human beings are facing the

need to move to an environmentally friendly lifestyle. At this point, new economic thinking, including the digital economy, is becoming increasingly important.

However, the private sector alone will not be able to develop the digital economy. In other words, government involvement and regulation play a key role in its development and public-private partnership is urgently needed here.

## THE COMPONENTS AND CHALLENGES OF THE DIGITAL ECONOMY

Before considering the components of the digital economy, it is important to distinguish it from other related ideas. Bukht and Heeks considered the digital-related economy in the following three levels (Bukht & Heeks, 2017). The first or core part of it is the "digital sector". It is often referred to as the IT sector or the ICT sector. Key software technologies at the forefront of the industry include blockchain, data analysis, artificial intelligence, 3D printing, the Internet of Things, 5G wireless technology, and cloud computing. The second level of digital-related ideas is the "digital economy". If the economic activity expands as a result of the use of information technology, then the use of digital technology in a wide range, plus the production of these digital technologies, is understood as a digital economy. The digital economy includes all electronic games, cloud software, platform economics, and online job markets. The third level of this idea is the digitalized economy. A digitalized economy is the use of digitalization in organizational and social processes. These include e-commerce, the Fourth Industrial Revolution, e-business activities and etc.

The digital transition is a gradual process that goes through the above-mentioned levels. Depending on the economic situation of each country, the level of education of the people, and the legal environment, the digital transition is continuing at different speeds. Anyway, successful digital transition depends on the following three main components (Bukht & Heeks, 2017).

- Infrastructure
- System and planning
- Information security

Infrastructure issues facing the digital economy include the need for the country to have sufficient electricity and whether or not broadband internet access has been used (Tuul.D, 2020). "The Sustainable Development Goal-2030" sets the goal of "significantly increasing access to information and communication technologies by 2020 and providing affordable internet access to the population of the least developed countries" (United Nations, 2021). However, Internet access in developing countries is less than 50 percent (target is 65 percent), and in poor countries 19 percent (target is 35 percent), which is likely to extend the accomplishment duration of the Sustainable Development Goals (The State of Broadband, 2020).

To connect to the mobile Internet and make digital economy goods and services more accessible, equipment and applications that support 3G and 4G technologies need to be available. In developing countries and less developed countries, a significant portion of the population use only 2G-enabled phones, and smartphones are expensive and inaccessible. In most developing countries, the monthly fee for broadband internet and mobile internet is several times higher than in developed countries (ITU, 2019).

Issue of system and planning is measured by the additional amount of investment required to make the digital transition, and the ability of citizens to be ready for the digital transition, such as using the internet and interacting with smart devices. It also covers related issues such as whether the legal environment has been met. Lack of human resources in developing countries, uncertain sources of funding, and weak governance policies are major challenges to the development of the digital economy.

Depending on the lack of financial sources, many developing countries do not have high-speed broadband internet access, and the capacity of international internet transferring cables is poor. Large companies are often able to raise the necessary capital themselves, expand their network capacity, and compete in local and global markets. However, the establishment of high-speed broadband

networks, international internet connections, and the introduction of high technology is itself very costly, making it difficult for small or mid-sized private companies to invest (Bukht & Heeks, 2017). Digital economic policy planning is often lacking in most developing countries, inadequate, inconsistent with traditional economic policies, and in some cases flawed due to unclear legal issues.

Information security issues consider the current hacking risk of important data and official documents, even with the digital transition it can be stored electronically and safely. As the digital economy grows, another negative consequence of it is the issue of security and personal information. In developing countries with weak security infrastructure, hackers are more likely to leak information and use it in a malicious way. For example, in February 2016, the Bank of Bangladesh could stop most of the hacking of $1 billion through the SWIFT network, but the losses were significant. Statistics from the World Economic Forum show that the global economy lost $ 2.5 trillion in 2019 due to cyberattacks, and by 2022 this figure could reach $ 8 trillion (Schwab, 2019).

## CURRENT SITUATION OF THE DIGITAL ECONOMY

The use of digital technology is growing rapidly around the world, and electronics such as mobile phones, computers, and tablets are becoming an integral part of our daily lives. For example, the number of internet users increased 2.5 times from 2 billion in 2010 to 4.9 billion in 2021 (ITU, 2021). Also, there are more than 2.9 billion active Facebook users, accounting for more than half of the world's Internet users(World Population Review, 2021).

The World Bank has used the Digital Adoption Index (DAI) to assess how does this technological advancement affect a country's GDP. According to international economists, there is a direct relationship between innovation-based technology and economic growth, and at each level of the economy such as a household, businesses, and government offices.

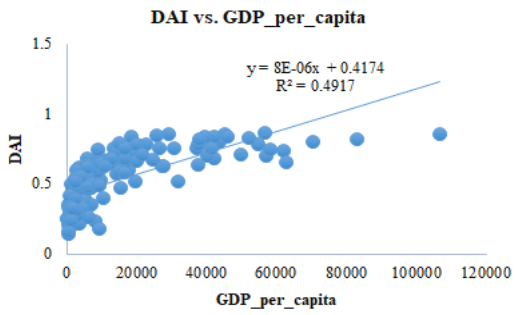


*Fig 1. The relationship between overall DAI and GDP per capita*

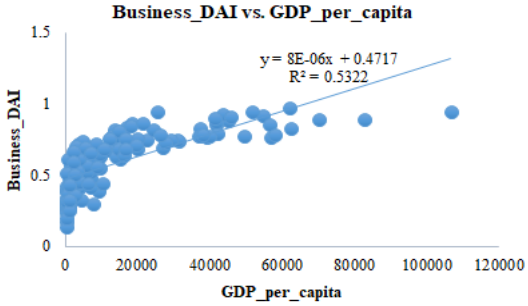


*Fig 2. The relationship between Business DAI and GDP per capita*

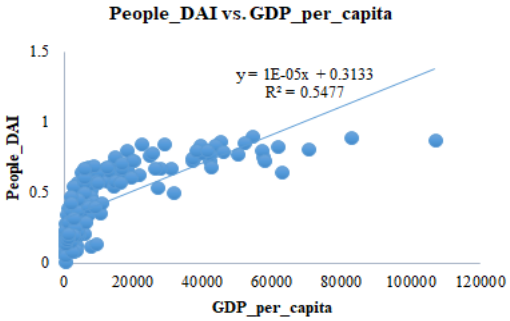


*Fig 3. The relationship between People' DAI and GDP per capita*

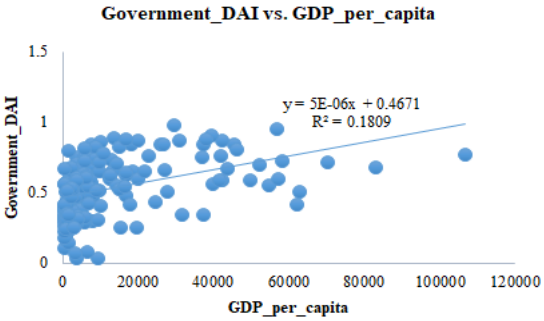


*Fig 4. The relationship between Government DAI and GDP per capita*

*Source: Researchers' calculation*

The State Council of the People's Republic of China in January 2022 unveiled a plan to develop the digital economy under the 14th Five-Year Plan (2021-2025). In 2020, the digital economy accounted for 7.8 percent of China's GDP, but the new plan aims to increase it to 10 percent by 2025. Famous businessman Pony Ma, the founder of Tencent group of China, described the digital economy as the

core engine of China's economy (Xinhua, 2017). According to the plan, China aims to put more effort into the research and development of the 6G network, increase innovation in strategic sectors such as integrated networks and artificial intelligence, and support the development of new business models.

Not only China but all countries of the world and their economies are experiencing the strongest changes in the digital transition. Countries that do not pay attention to this process and do not implement it will lose the competition. Such a digital transition involves all processes in public and private businesses, such as human resources, customer service, investment, manufacturing, finance, marketing, and sales. We consider what Mongolia is doing when all countries are trying to increase productivity in their economic sectors using digital technology.

Mongolia ranks 62nd place out of 64 countries in terms of digital competitiveness. In 2021, Mongolia's overall digital competitiveness score decreased by 2.99 points from 43.68 in 2020 to 40.69 in 2021. According to the three main indicators, Mongolia was ranked 58th in the knowledge category in 2021, the same as last year, but dropped one place in technology and three places in readiness for the future.

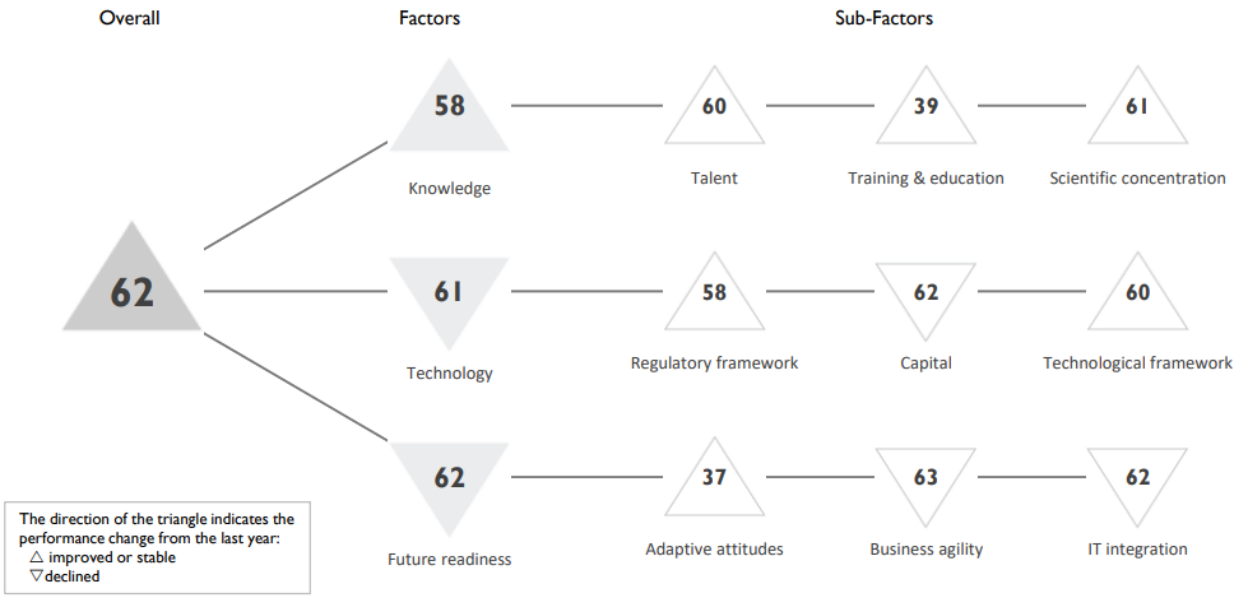


Figure 5. Overall performance of digital competiveness of Mongolia

*Source: (IMD World Competiveness Center, 2021)*

Considering its very low competitiveness ranking, the Government of Mongolia has focused on digital development in its "Vision 2050" long-term development policy. For example, the Government started to work to increase funding and other support for science and innovation in priority fields such as nano-, bio-, information technology, and artificial intelligence and to bring the green and digital economy and intellectual production up to regional standards by 2031-2040.

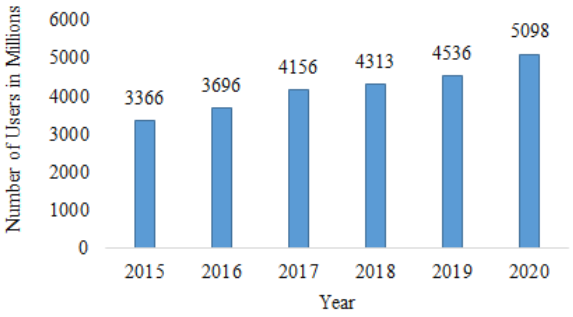


*Fig 6. Number of internet users worldwide*

*Source: (Internet World Stats, 2020)*

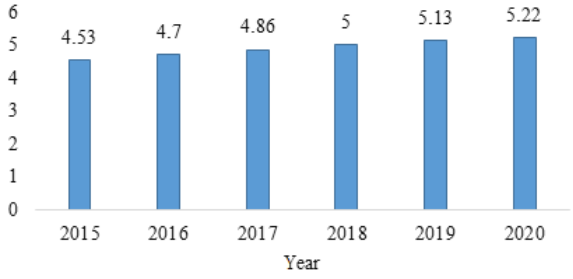


*Fig 7. Number smartphone users worldwide, in billions*

*Source: (Datareportal, 2020)*

Also, the Government Resolution No. 153 of 2013 has started to regulate "Some measures to be taken regarding the One-Stop-Public Service Center" and the Government Resolution No. 141 of 2016 has started to regulate "Measures to be taken on the One-stop Public Service Center". As a result of the continuous initiatives, the use of government digital vending machines reached 1,696,754 in 2018 and is growing year by year.

Despite trying to achieve these goals and government policies, Mongolia's digital competitiveness index fell from 61st in 2017 to 62 in 2021. So we can say that the digital transition in Mongolia is very slow and ineffective.

## THE RESEARCH OF FACTORS, WHICH AFFECTING THE DIGITAL ECONOMY

In this research, we aim to examine how changes in digital technology affect the economies of countries, based on statistical data that reflects the real situations of the digital economy. The linear regression model was used on comparable data for 2016, such as GDP per capita, digital adoption index, number of internet users, and mobile phone subscribers from 180 countries. The model, used in the research is as follows:

$$\boldsymbol{GDP\_PC_t = \alpha + \beta_1 B\_DAI_i + \beta_2 P\_DAI_i + \beta_3 G\_DAI_i + \beta_4 INTERNET\_U_i + \beta_5 MOBILE\_C\_S_i + e_t}$$

Here, $\beta_1$, $\beta_2$, $\beta_3$, $\beta_4$ and $\beta_5$ are the relative impacts of the explanatory variables on economic growth. The above equation was evaluated using the ordinary least squares(OLS) method, and Table 1 shows the variable names, explanation, data source, and expected assumptions of the variables used in the model.

Table 1. The variables used in the model

| Variables | Explanation | Data source | Expectation |
|---|---|---|---|
| Dependent variable | | | |
| $GDP\_PC_t$ | GDP per capita | data.worldbank.org | |
| Independent variables | | | |
| $B\_DAI_i$ | Business DAI | data.worldbank.org | + |
| $P\_DAI_i$ | People's DAI | data.worldbank.org | + |
| $G\_DAI_i$ | Government DAI | data.worldbank.org | + |
| $INTERNET\_U_i$ | Number of internet users | www.internetlivestats.com | +/- |
| $MOBILE\_C\_S_i$ | Number of mobile subscribers per 100 people | data.worldbank.org | +/- |

Descriptive statistics for each variable used in the research are shown in Table 2.

Table 2. Descriptive statistics for variables

| | Mean | Median | Maximum | Minimum | Std. Dev. | Kurtosis | Observations |
|---|---|---|---|---|---|---|---|
| GDP_PC | 12,913 | 5,289 | 106,827 | 261 | 17,789 | 8.66 | 180 |
| B_DAI | 0.57 | 0.58 | 0.97 | 0.13 | 0.19 | 2.11 | 180 |
| P_DAI | 0.44 | 0.43 | 0.90 | 0.01 | 0.24 | 1.81 | 180 |
| G_DAI | 0.53 | 0.55 | 0.98 | 0.04 | 0.20 | 2.42 | 180 |
| INTERNET_U | 18,581,895 | 2,998,436 | 721,000,000 | 5042 | 68,876,118 | 72.0 | 180 |
| MOBILE_S | 107 | 110 | 213 | 28 | 36 | 3.07 | 180 |

*Source: Researchers' estimation*

The World Bank's Digital Adoption Index for 180 countries since 2016 has not been found, so the researchers used comparative data from 2016. Luxembourg had the highest GDP per capita, China was leading by the number of internet users and the United Arab Emirates is leading by the number of mobile phone subscribers per 100 people.

Table 3. Digital Adoption Index, by leading countries

| Country | GDP_per_capita | DAI | Business_DAI | People_DAI | Government_DAI |
|---|---|---|---|---|---|
| Singapore | 56848.18 | 0.87 | 0.85 | 0.80 | 0.96 |
| Luxembourg | 106826.73 | 0.86 | 0.94 | 0.87 | 0.77 |
| Austria | 45276.83 | 0.86 | 0.88 | 0.87 | 0.85 |
| Korea, Rep. | 29288.87 | 0.86 | 0.75 | 0.84 | 0.98 |
| Malta | 25741.45 | 0.86 | 0.94 | 0.79 | 0.84 |
| Germany | 42107.52 | 0.84 | 0.87 | 0.78 | 0.87 |
| Netherlands | 46007.85 | 0.84 | 0.91 | 0.80 | 0.81 |
| Japan | 39400.74 | 0.83 | 0.76 | 0.84 | 0.91 |
| Estonia | 18282.92 | 0.83 | 0.85 | 0.80 | 0.85 |
| Sweden | 51965.16 | 0.83 | 0.94 | 0.85 | 0.70 |
| United Arab Emirates | 38141.87 | 0.82 | 0.78 | 0.80 | 0.89 |
| Switzerland | 83073.28 | 0.82 | 0.89 | 0.89 | 0.69 |
| Finland | 43784.28 | 0.81 | 0.92 | 0.83 | 0.67 |
| Norway | 70460.56 | 0.80 | 0.88 | 0.81 | 0.72 |

*Source: data.worldbank.org*

Singapore, Luxembourg, Austria, Korea Rep, Malta, Germany, Netherlands, Japan, Estonia, Sweden, United Arab Emirates, Switzerland, Finland and Norway led other countries by the Digital Adoption Index.

Table 3. Correlation matrix of the variables

| | GDP_PC | B_DAI | P_DAI | G_DAI | INTERNET_U | MOBILE_C_S |
|---|---|---|---|---|---|---|
| GDP_PC | 1.0000 | 0.8852 | 0.8911 | 0.5445 | 0.2277 | 0.5803 |
| B_DAI | 0.8852 | 1.0000 | 0.8978 | 0.6173 | 0.2680 | 0.5779 |
| P_DAI | 0.8911 | 0.8978 | 1.0000 | 0.6720 | 0.3366 | 0.7483 |
| G_DAI | 0.5445 | 0.6173 | 0.6720 | 1.0000 | 0.6437 | 0.5313 |
| INTERNET_U | 0.2277 | 0.2680 | 0.3366 | 0.6437 | 1.0000 | 0.2410 |
| MOBILE_C_S | 0.5803 | 0.5779 | 0.7483 | 0.5313 | 0.2410 | 1.0000 |

*Source: Researchers' estimation*

The results of the research show that the correlation coefficients of B_DAI, P_DAI, G_DAI indices (business, people, and government digital adoption indices) with GDP per capita (GDP_PC) are 0.88, 0.89, and 0.54, respectively. Economic growth is strongly positively correlated with the people and business digital adoption indices, while it is moderately correlated with the government digital adoption index and the number of mobile subscribers.

Table 4. Correlation matrix for the variables

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| B_DAI | 2.787 | 0.528 | 5.277 | 0.000* |
| P_DAI | 4.007 | 0.529 | 7.570 | 0.000* |
| G_DAI | -0.551 | 0.353 | -1.562 | 0.120 |
| INTERNET_U | -0.019 | 0.026 | -0.744 | 0.458 |
| MOBILE_C_S | -0.389 | 0.171 | -2.276 | 0.024** |
| C | 7.593 | 0.840 | 9.037 | 0.000* |
| R-squared | 0.843 | Mean dependent var | | 8.6 |
| Adjusted R-squared | 0.839 | S.D. dependent var | | 1.396 |
| S.E. of regression | 0.561 | Akaike info criterion | | 1.714 |
| Sum squared resid | 54.72 | Schwarz criterion | | 1.82 |
| Log likelihood | -148.243 | Hannan-Quinn criter. | | 1.757 |
| F-statistic | 186.946 | Durbin-Watson stat | | 2.00 |
| Prob(F-statistic) | 0.000 | | | |
| *Note: (*), and (**) mean significance at 1% and 5% respectively.* | | | | |

*Source: Researchers' estimation*

When interpreting GDP per capita in terms of people, business, and government digital adoption indices, the number of mobile phone subscribers, and internet users, the explanation probability of the equation is 84.3 percent. By the estimation, economic growth is positively related to the Business Digital Adoption Index (B_DAI) and the People's Digital Adoption Index (P_DAI) and negatively related to the number of Mobile phone subscribers (MOBILE_C_S), and all coefficients for these variables are statistically significant.

Increasing investment in technology and supporting technology-based businesses, as well as increasing access to e-services by the government, show that the digital economy can thrive. Although the number of mobile phone subscribers and internet users is growing rapidly, it is still failing to grow enough to reap the benefits of the digital economy. In other words, this may be due to the fact that the majority of the population does not fully understand the value of digital tools and spends most of their time watching useless information such as social media news. Therefore, it is necessary to try to use digital devices fully and properly.

The Government Digital Adoption Index (G_DAI) and the Internet Adoption Index (INTERNET_U) have a negative relationship to economic growth and their coefficients are statistically less significant. It means that the government is not able to take full advantage of digital devices and get the benefits of digital economic development on revenue generation. In order to increase the Internet index, it is necessary to provide citizens with information on how to obtain electronic products and services using digital devices and to take measures to increase accessibility.

In Mongolia and other countries of the world, the digital transition is going most rapidly in the banking sector. Following a good example of this sector and bringing digital transition to each of the other economic sectors will help to boost the whole economy. There is an urgent need to accelerate the digital transition, especially in public sectors, especially in education and health sectors.

## CONCLUSIONS AND POLICY RECOMMENDATIONS

While the importance of the digital economy is growing in developing countries, there are still obstacles to reaping its benefits. This research aims to examine the impact of digital technological change on the economies of countries. Firstly, the research examines the current situation of the digital economy, with the preliminary hypothesis of positive and direct relationships between the real economic growth of the countries and the digital adoption indices. In other words, if technology can be developed and used effectively in daily life, it definitely leads to a high level of innovation-based economic growth. The next section examines the challenges facing the digital economy in three areas:

infrastructure, systems and planning, and information security. Also, the research evaluated a linear regression model using comparative data from 180 countries in 2016.

As a result of the research, economic growth is positively related to the People's and Business Digital Adoption Indices, and negatively related to the number of mobile phone subscribers, and all relationships are statistically significant. However, the government digital adoption index and the internet adoption index had a negative impact on economic growth and these were statistically less significant.

In order to take the benefits of digital economic development and move forward no less than developed countries, developing countries need to provide the preliminary conditions for the development of the digital economy. Infrastructure is the most fundamental issue. Before discussing the issue of digital infrastructure, it is necessary to underline energy shortages, dependencies on other countries, costs, and poor quality, and to address the issue of reliable and affordable energy sources. There is also a need to support the private sector investment and initiatives in developing communication infrastructure.

At the national level, energy issues need to be addressed as a matter of priority, as it is not possible to keep going with the digital economy without developing digital technology and infrastructure; In the case of the private sector, mobile phone operators and Internet service providers should extend the internet to remote areas; For individuals, it is necessary to choose cost-effective ways, such as having access to the Internet and having the equipment to access the internet quickly and cheaply.

Information security is needed to use the large amounts of data collected under the influence of the digital economy properly and to prevent any cyber-attacks and fraud usage. This, in turn, will address these issues, such as reliable infrastructure, skilled and qualified human resources, and a high level of public awareness of digital technology. Simply, there is an urgent need to create a favorable financial, legal, and policy planning environment for the development of digital infrastructure, and to significantly improve the level of education and language skills of the population.

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# DIFFERENTIATED INSTRUCTION IN ENGLISH CLASSROOMS

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**Abstract.** In this article we firstly discuss about the differentiated instruction theory and its benefits in teaching and learning processes. Then we talk about teachers' role and their initiative in the differentiated instruction. Thirdly we investigate the secondary school English language teaching staff for their understanding about the differentiated instruction and application practices of the theory in their classes and try to answer the question regarding the availability and necessity of the differentiated instruction in the typical English classroom at Mongolian secondary schools.

**Keywords**: differentiated instruction, teacher development, curriculum design, student performance, learner needs, learning styles

## INTRODUCTION

Differentiated instruction means helping a student in need. It is a change of instruction, learning materials, content and assessment adapted to the learning needs of individual student. It is a fairly new teaching approach that provides teachers with a starting point for meeting students' diverse learning needs. Although differentiated instruction has gained a lot of attention in practice and research in the education sector in western countries, it is not widely known in Mongolian schools and educational environments.

One of the biggest advantages of differentiated learning for students is the variety of teaching methods. In lessons that use different instructions, individual students are encouraged and they become more motivated. Differentiated instruction focuses more on the clever alterations of student assignments. This is especially helpful for secondary school students, because the quality of the tasks required is more important than the number of tasks required to determine a student's understanding and resilience. Instead of changing the amount of task work, adjusting the nature of the task is a more effective and proactive way to support the learning process.

Differentiated instruction is a pedagogical-didactical approach that provides teachers with a starting point for meeting students' diverse learning needs. Although differentiated instruction has gained a lot of attention in practice and research, not much is known about the status of the empirical evidence and its benefits for enhancing student achievement in secondary education.

American educators such as Dr. Howard Gardner, Carol Ann Tomlinson suggested the differentiated instruction to students whose backgrounds are very different from each other. However, students in Mongolian English classrooms are not as diverse as they are in the United States. Students in our classes are from the same cultural background, speak the same language and think in the same language. In other words, differences among students in Mongolian classrooms, especially in English language classes, are somewhat less and limited. Provided that, we assumed the needs of our students are far less diverse than the students with different cultural backgrounds, different language proficiency levels and different interests. Therefore, we tried to look into the question that should English teachers use the differentiated instruction in Mongolian classrooms when teaching English. With this article, we try to explore teachers' opinions about the theory and offer new insights into the knowledge and instructional decision making of the teachers involved in the survey.

## LITERATURE REVIEW

Differentiated instruction is a popular topic in today's education. Experts and researchers are urging teachers to recognize diversity and change their guidelines to meet the multifaceted learning needs of students in their classrooms (Schleicher, 2016; UNESCO, 2017). Differentiation is a teaching philosophy based on a deep respect for students, a recognition of their differences, and a desire to help all students succeed. Such ideas imply that teachers actively change the curriculum, teaching methods, resources, learning activities, or student product needs to better meet the learning needs of students (Tomlinson et al., 2003).

When teachers deliberately plan such adaptations to facilitate students' learning and execute these adaptations during their lessons, we call it differentiated instruction. A number of developments in education have boosted the need for differentiated instruction. First, contemporary classes are becoming relatively heterogeneous because of policies focused on retracking, the inclusion of students from culturally and linguistically diverse backgrounds, and inclusive education in which special education students (SEN) attend classes along with non-SEN students (Rock et al., 2008; Tomlinson, 2015).

If teachers deliberately create such adaptations to facilitate students' learning and adapt them to the productivity of the lesson, we think it is a differentiated training. Numerous developments in education have increased the need for differentiated education. Operational and modern classrooms have the potential to improve policies to direct cultural and linguistic work to different students, including special education students (SEN) and non-school students (Rock et al., 2008; Tomlinson).,

2015). Early classifications may randomly affect the educational opportunities of students with different background characteristics, so meeting the learning needs of students by adapting to different grades is considered the best choice for a fair education system (Oakes, 2008; Schütz et al., 2008; Schofield, 2010; OECD, 2012, 2018). In addition, even in relatively homogeneous classrooms, there are significant differences between students who need attention (Wilkinson and Penney, 2014). Second, learners have different learning needs and the idea that one approach is not enough is gaining momentum (Subban, 2006). Experts emphasize that all students should have sufficient knowledge and skills to develop themselves (Rock et al., 2008; Schleicher, 2016) and to develop students' ability to improve equality and equality (UNESCO, 2017; Kyriakides et al.). others, 2018). The goal is for teachers to invest the most in widening the gap between low-achieving and low-achieving students and to support low-achieving students. This is called an envelope differential (Bosker, 2005).

Change, the teacher's efforts to change the way all students strive for equality through the sun, the time to increase the learning goals and productivity of the students, and the results (Bosker, 2005). Although the concept of differentiated instruction is quite well-known, teachers find it difficult to grasp how differentiated instruction should be implemented in their classrooms (Van Casteren et al., 2017). A recent study found that teachers across different countries infrequently adapt their instruction to student characteristics (Schleicher, 2016). Struggling students may work on too difficult tasks or, conversely, high ability students may practice skills they have already mastered (Tomlinson et al., 2003). Clearly, more information about effective practices is needed. For secondary education, evidence for the benefits of differentiated instruction is scarce (Coubergs et al., 2013). The bulk of studies in secondary education focus on differentiation of students between classes by means of streaming or tracking (Slavin, 1990a; Schofield, 2010). Alternatively, the current study seeks to scrutinize which empirical evidence there is on the effectiveness of within-class differentiated instruction in secondary education, how studies operationalize the approach, and in which contexts the studies were performed.

Classroom level curriculum development is not only effective for teachers, but also for students as well. The differentiated instruction is one of many examples of classroom level curriculum development. There are assumptions that the students benefit more from the differentiated instruction, since it is a big path for them to overcome their failure to remember the learned knowledge over time by strengthening their academic skills.

Differentiated instruction means addition to the core curriculum. In other words, course curriculum should be adjusted according to each learner’s needs. The modern student population is getting increasingly diverse resulting in their learning pace and capacity. Diversity such as students with disabilities, students with language backgrounds other than English, students with imposing emotional difficulties and gifted student further influences teaching methods and teacher’s choices in the classroom.

It is necessary to take into account the vast differences among students in a classroom, acknowledging each student’s strengths while accommodating their limitations (Guild, 2001; Mulroy and Eddinger, 2003; Tomlinson, 2001c, 2002). Contemporary classrooms should accept and build on the basis that learners are all essentially different (Brighton, 2002; Fischer and Rose, 2001; Griggs, 1991; Guild, 2001; Tomlinson, 2002).

While educators understand that not all learners are the same, and that their needs are diverse, few teachers accommodate these differences in their classrooms (Gable, Hendrickson, Tonelson, and Van Acker, 2000; Guild, 2001). Teachers need to know how to respond to the burgeoning diversity of contemporary classrooms (Fischer and Rose, 2001; Flem et al., 2000; McCoy and Ketterlin-Geller, 2004; Mulroy and Eddinger, 2003; Sizer, 1999; Tomlinson, 2001b, 2004a). The use of single-paced lessons delivered through a singular instructional approach disregards the different learning styles and interests present in all classrooms (Fischer and Rose, 2001; Forsten et al., 2002; Guild, 2001; Tomlinson and Kalbfleisch, 1998).

According to Windy D. Turner, Oscar J. Solis, and Doris H. Kinkaid, most of the teachers surveyed believe that teachers who offer differentiated instruction brought "significant rewards”. However,

differentiated instruction poses many challenges. Too many students in English classrooms, teachers not trained in differentiated instruction, less focus on lessons are just few examples. However, as English language teaching adapts to more technology and diversity due to needs, schools will begin to better manage the size of their language classrooms, and better equip their teachers to create a variety of innovative and active teaching methods and teachers will find that differentiated learning is essential for students' learning to reach their full potential. The use of the one-size-fits-all curriculum no longer meets the needs of the majority of learners (Forsten, Grant, and Hollas, 2002; McBride, 2004; McCoy and Ketterlin-Geller, 2004; Tomlinson, 2002; Tomlinson and Kalbfleisch, 1998).

## RESEARCH METHOD

In our research, we used both qualitative and quantitative methods to find an answer to the question "Should English teachers use the differentiated instruction in Mongolian classrooms of English language? by exploring teachers' opinions involved in the survey.

Qualitative: We interviewed five college English teachers to find out their knowledge and practice about differentiated instruction theory and curriculum design in general. All five participants have been teaching English as a Foreign Language (EFL) over ten years in Mongolia. They all have received their bachelor's degrees in Mongolia as English language teachers. There is no cultural and ethnic diversity among teachers. We have chosen these five teachers, as we believe they could represent the secondary school English language teachers since they have had many years of experience in the system. For the interview, we had a separate appointment with each of the interviewees. The single interview lasted 15 to 20 minutes each. There were 17 questions asked to find out the participant's knowledge about differentiated instruction and use of it in general. We analyzed the qualitative data which is the interview results and looked for emergent issues and the overall pattern in the curriculum knowledge of the English teachers.

Quantitative: The targeted population in our research are 20 full time English teachers at various schools. We took a survey using a Likert scale questions. There were 8 questions about differentiated instruction and participants chose the best responses on the Likert scale ranging from (1) strongly disagree to (5) strongly agree.

We used t-test to compare pre-survey and post-survey results of the same 20 teachers whom were asked to complete pre-survey questions and were assigned readings about differentiated instruction. We prepared reading materials in English on differentiated instruction, how to differentiate content, process, product and performance; and differentiation strategies for the classrooms. After the treatment they were asked to reflect and respond to their readings completing the Likert scale questions provided for the post-survey. We used the same Likert scale questions for pre and post surveys and Microsoft Excel to analyze the data looking for the differences and changes the introduction of the differentiated instruction may make.

## RESULTS

Quantitative results: The results were analyzed by running a t-test for independent samples on Excel software. Results indicate that the mini experiment has resulted in slight change in the teachers views about differentiated instruction. All of the p-values are over 0.05 and it shows no significant difference between pre survey and post survey answers.

In the table 1, post survey mean is lower than the pre survey mean. That means teachers changed their views about considering student needs after the reading and tended not to consider it. Though P value is 0.37 which means there is slight difference. Table 2 and Table 3 show that teachers' responses shifted from disagreement to agreement with the statement after the experiment. However, the differences for both tables are not significant. Table 4, Table 5 and Table 6 have similar results: pre survey means are lower than the post survey means, and P values are higher than 0.05. The results show that after reading teachers favored differentiating the content, assessment and process and there

are greater changes in their opinions towards differentiating. Table 7 indicates that teachers were more neutral in answering the question. P value 0.25 also suggests that their answers have not changed much. It was interesting to learn from Table 8 that before the experiment, teachers thought that differentiating their instruction was easier. We inferred that the experiment did not lead to significant changes in views, but helped teachers look at the differentiated instruction more seriously.

Table 1
t test Q1

| | pre | post |
|---|---|---|
| Mean | 5 | 4.666667 |
| Observations | 3 | 3 |
| t Stat | 1 | |
| P(T<=t) one-tail | 0.18695 | |
| t Critical one-tail | 2.131847 | |
| P(T<=t) two-tail | 0.373901 | |
| t Critical two-tail | 2.776445 | |

Table 2
t test Q2

| | pre | post |
|---|---|---|
| Mean | 1.666667 | 3.333333 |
| Observations | 3 | 3 |
| t Stat | -2.23607 | |
| P(T<=t) one-tail | 0.044505 | |
| t Critical one-tail | 2.131847 | |
| P(T<=t) two-tail | 0.089009 | |
| t Critical two-tail | 2.776445 | |

Table 3
t test Q3

| | pre | post |
|---|---|---|
| Mean | 1.333333 | 3 |
| Observations | 3 | 3 |
| t Stat | -2.5 | |
| P(T<=t) one-tail | 0.033383 | |
| t Critical one-tail | 2.131847 | |
| P(T<=t) two-tail | 0.066767 | |
| t Critical two-tail | 2.776445 | |

Table 4
t test Q4

| | pre | post |
|---|---|---|
| Mean | 1.333333 | 2.666667 |
| Observations | 3 | 3 |
| t Stat | -1.41421 | |
| P(T<=t) one-tail | 0.1151 | |
| t Critical one-tail | 2.131847 | |
| P(T<=t) two-tail | 0.2302 | |
| t Critical two-tail | 2.776445 | |

Table 5
t test 5

| | pre | post |
|---|---|---|
| Mean | 1.666667 | 2.666667 |
| Observations | 3 | 3 |
| t Stat | -1.06066 | |
| P(T<=t) one-tail | 0.174321 | |
| t Critical one-tail | 2.131847 | |
| P(T<=t) two-tail | 0.348641 | |
| t Critical two-tail | 2.776445 | |

Table 6
t test Q6

| | pre | post |
|---|---|---|
| Mean | 1.333333 | 3 |
| Observations | 3 | 3 |
| t Stat | -1.58114 | |
| P(T<=t) one-tail | 0.094502 | |
| t Critical one-tail | 2.131847 | |
| P(T<=t) two-tail | 0.189004 | |
| t Critical two-tail | 2.776445 | |

Table 7

t test Q7

| | pre | post |
|---|---|---|
| Mean | 2.333333 | 3.333333 |
| Observations | 3 | 3 |
| t Stat | -1.34164 | |
| P(T<=t) one-tail | 0.125408 | |
| t Critical one-tail | 2.131847 | |
| P(T<=t) two-tail | 0.250815 | |
| t Critical two-tail | 2.776445 | |

Table 8

t test Q8

| | pre | post |
|---|---|---|
| Mean | 3.333333 | 3 |
| Observations | 3 | 3 |
| t Stat | 0.316228 | |
| P(T<=t) one-tail | 0.383822 | |
| t Critical one-tail | 2.131847 | |
| P(T<=t) two-tail | 0.767644 | |
| t Critical two-tail | 2.776445 | |

Qualitative analysis: We interviewed five teachers who have been teaching English for over ten years. We inferred from the interview that all five teachers were not very interested in using differentiated instruction in their teaching due to their classroom sizes and immense requirement for preparation and dedication. They had adequate knowledge about differentiated instruction, however, they did not welcome the idea of differentiated instruction. Analyzing their answers regarding their curriculum knowledge and professional development, it is revealed that teachers themselves tend to be reluctant to make inquiries into the new knowledge in the areas of curriculum design and the school did not require teachers to be initiative in the curriculum design and updates. About their preferences over a teacher centered via student centered instruction, three of them favored student centered approach which means they might be more open to the differentiated instruction. It seemed teachers lacked the experience of supporting different learning styles, and they did not pay much attention to responding student needs.

## DISCUSSION

With my study we sought an answer to a question “should English teachers use the differentiated instruction in Mongolian classrooms when teaching English?” to find out if the theory is necessary for our learners. We expected that the differentiated instruction theory might make changes in the thinking and attitude of teachers, but the findings from the quantitative research evidenced the very slight difference between pre survey and post survey outcomes.

We tried to conduct the research in the light of exploring the preferences of these participants and as well as what the curriculum development and faculty development actions are at the school.

The qualitative data of our study shows that although teachers do not lack new knowledge about new learning theories, they tend ignore while the schools do not change its curriculum over many years and did not require teachers to be initiatives in curriculum area leading reluctance to change for growth.

The data collected from my quantitative research shows that the new knowledge about differentiated instruction did not make much differences meaning differentiated instruction is not supported and most teachers see themselves as curriculum transmitters.

## DISCUSSION OF LIMITATIONS

The results of both the quantitative and qualitative data are limited. Both questions used for the survey and interview were fewer and the number of participants were very few. Therefore, the findings are far too weak to draw any significant conclusions about the necessity of differentiated theory.

## VALIDITY

One aspect that may have affected the validity of the study was the participant's awareness of the research. The teachers were informed that they were participating in the mini experiment with reading assignments and therefore they would be pre and post surveyed for their views. This may have impacted their effort positively or negatively, and rendered the resulting data invalid.

## CONCLUSION

It is seen that the mini experiment has slightly changed the teachers' attitude towards differentiated instruction. However, there is evidence that teachers felt positive about their new knowledge and consider it important to differentiate. Moreover, teachers consider themselves as curriculum transmitters and felt negative about professional development of the school.

The issue of curriculum knowledge of teachers needs to be researched and discussed in future. Based on the findings from our research we concluded that the differentiated instruction may be applicable to our students for better performance, though the more in-depth research needs to be done to determine the availability, advantages and effectiveness of the differentiated instruction theory for the school. This research is important as it addressed the teacher development issues at schools, and offered the new knowledge and suggested new instructional varieties to the participants.

Students may not be academically strong or self-studious, or too busy to succeed in a traditional teacher-oriented class. As a result, schools based on traditional teaching methods will not be able to see promising performances of their students unless they opt to newer teaching approaches, so there will a lot of changes in the teaching methods and styles in the future. The goal of differentiation is to increase the performance of all students regardless of their starting point, so the differentiated instruction could be the best choice for a teacher to extend the knowledge and skills of every traditional and non-traditional student in his class.

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## APPENDIX

### Interview questions

1. How can one teacher possibly manage a classroom and meet individual student needs?
2. How can a teacher maximize his/her role during whole class instruction, independent, and/or group work time?
3. How can the use of differentiated instruction improve student performance?
4. How can we best differentiate instruction?
5. How will we know our work has been successful for our learners?
6. Do you actively diversify your teaching methods in your classroom?
7. Do you have adequate differentiated instruction knowledge?
8. Do you make inquiries into the latest literature in the area of differentiated instruction?
9. Does your school have teacher development training?
10. Does your school support professional development opportunities?
11. Are you familiar with different learning styles?
12. Which do you prefer: a teacher centered instruction or student-centered instruction?
13. Do you respond to learner needs?
14. How necessary do you think the differentiated instruction is?
15. Does your school allow differentiated instruction?
16. Is differentiated instruction included in the curriculum design in your school?
17. Would you include differentiated instruction in your teaching?

### Survey questions

Please read the following question carefully. Please use each rating number only once. Circle your opinions on the differentiated instruction.

5 = Most Important; 1 = Least Important

5 = Yes; 1 = No

Would you consider student needs and interests?

5 4 3 2 1

What do you think of the differentiated instruction?

5 4 3 2 1

Do you think it is necessary to differentiate your teaching?

5 4 3 2 1

Would differentiated instruction increase student performance?

5 4 3 2 1

Would you differentiate assessment?

5 4 3 2 1

Would you differentiate process?

5 4 3 2 1

Would you differentiate content?

5 4 3 2 1

Is it burdensome for a teacher to offer differentiation?

5 4 3 2 1

# ANALYSIS OF E-LEARNING SUCCESS FACTORS: THE MEDIATING ROLE OF INTENTION TO USE

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**Abstract.** Higher education institutions are changing the way individuals learn and socialize. E-learning is being considered one crucial method of education, and various models and methods are being used to test its implementation and accomplishments. Among many, the DeLone MacLean information success (IS) success model is the most widely used in the assessment of e-learning systems' success evaluation. In this study, we used the D&M IS Success Model to examine whether e-learning can be a successful transmitter of knowledge. The aim of this research was to study the effectiveness of the platforms used in e-learning at the Mongolian University of Science and Technology and to identify the factors that affect the quality. Consequently, our intention was to 1) assess the success of e-learning by the D&M IS Success Model; 2) define the impact of current e-learning practice on individuals. The survey covered 685 undergraduate and graduate students of the Mongolian University of Science and Technology. Results demonstrated that high-quality systems and information upsurge the individual impact. In addition, increased and continuous usage of e-learning systems plays a mediating role between system quality and individual impact. To ensure the continuous use and effectiveness of e-learning systems, special attention should be paid to factors such as service quality, systems' simplicity and flexibility, and customer satisfaction.

**Keywords:** information system, service quality, success model, individual impact

## INTRODUCTION

Today, information systems play an important role in all areas of business, trade, health, and education. With the development of information technology, the use of electronic media for information dissemination has become a global phenomenon. Many claims that information technology increases competitiveness and provides access to effective information for organizational decision-making. Advances in information technology have created a new paradigm in the field of education, with the learning process being done remotely, not just in the classroom. New technologies provide access to media-based learning and other training services [1], and participants can access and use the service whenever and wherever they want [2].

Although the world universities use e-learning systems, the level of implementation varies depending on the infrastructure, system and content development, and the quality of support services. The success of an information system depends on several factors, including the quality of the system, information, and services, as well as the level of user acceptance, use, and attitudes [3]. Researchers have studied the factors that affect consumers in terms of environmental, organizational, technological, and so on. Assessing the success and effectiveness of e-learning systems implemented in universities will help to identify factors for further development. Many models such as the DeLone and McLean IS success model (D&M IS Success Model), the Technology Acceptance Model (TAM) model, the IS success model, the UTAUT theory, the Task-Technology Fit model (TTF); the End User Computing Satisfaction model (EUCS), and the HOT Fit, were tested to identify and evaluate the factors. For an e-learning system to be successful, it must have a positive impact on users [4]. Of these models, the success model proposed by Delone and MacLean has the advantage of expressing the effectiveness of e-learning comprehensively. In the context of a global pandemic, Mongolian universities have arranged e-learning using platforms such as MS Teams, Zoom, Google meets, Moodle, and social media. This has created a new paradigm in the education system and created the conditions and trends for further e-learning. The researchers argue that although e-learning has been successfully set, it is important to determine how effective they have been.

## LITERATURE REVIEW

### *The DeLone and McLean IS success model (D&M IS Success Model)*

The Delon and McLean model for evaluating the success of the system and the factors that define it is based on Richard Mason's mathematical theory of communication (1978). The model is based on three levels of information, in which:

1. Technical level or system accuracy and efficiency
2. The ability to convey information at the semantic level or purpose
3. Impact/level of impact or impact on the recipient

Txy DeLone and MacLean (1992) reviewed more than 180 research papers published between 1981 and 1987 and developed more than 100 measures to evaluate the success of information systems [6,7]. The first model (Fig.1) was proposed in 1992 and has been expanded in 2003 (Figure 2), adding future trends and net returns.

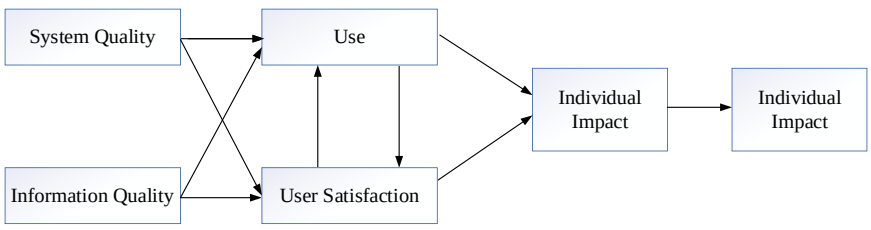


Figure1. DeLone and McLean IS success model (1992).

The main difference between the original and expanded models

1. Added service quality that reflects the importance of service and support to the success of the information system.

2. The idea of measuring consumer attitudes was added as another measure of Use.
3. Consider individual influences and alternative forms of organizational influence as more effective net returns

DeLone and MacLean's original design was based on 1) system quality; 2) quality of information; 3) consumption / future trends; 4) customer satisfaction and 5) impact on the organization; 6) impact on the individual. These variables are not independent measures of success but are interrelated variables [8].

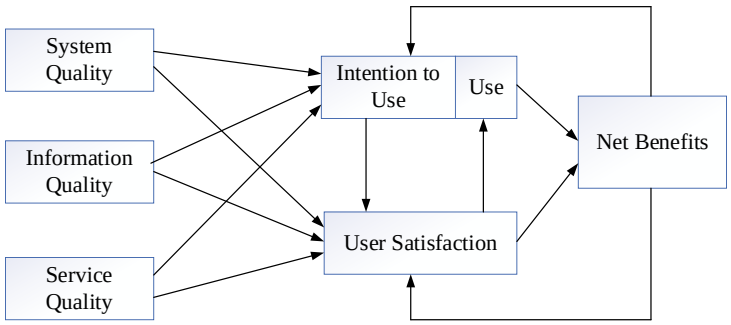


Figure 2. Updated DeLone and McLean IS success model (2003).

The extended model comprised 6 variables named as 1) Systems quality; 2) Information quality; 3) Consumption / Future trends; 4) Customer satisfaction, 5) Service Quality; and 6) Individual Impact or Net Return [9]. Contents of the constructs are detailed as follows:

1. Systems quality: Features of the systems such as ease of use, flexibility, reliability, and ease of learning of the system used in training [5,10].
2. Information quality: Coherence, clarity, accuracy, clarity, completeness, comprehensibility, applicability, timeliness, etc. [11].
3. Service Quality: Responsiveness, accuracy, reliability, responsible flexibility, technical skills, and staff sensitivity [12].
4. Use: The level, method, or extent of use of information system capabilities by staff and customers, frequency of use, nature of use, appropriateness of use, the scope of use, and purpose of use [13].
5. Customer Satisfaction: The level of customer satisfaction that results from consumption, positive perceptions, websites, and services [14,15].
6. Net return: The success of individuals, groups, organizations, industries, and countries. For example, it contributes to economic development by improving decision-making skills, increasing productivity, increasing sales, reducing costs, improving profits, increasing market efficiency, increasing consumer interest, and creating jobs [16].

Based on the above discussion we propose a theoretical model, as depicted in Figure 3, which emphasizes mediating effects of the Use, the Intention to Use, and the User Satisfaction constructs [17].

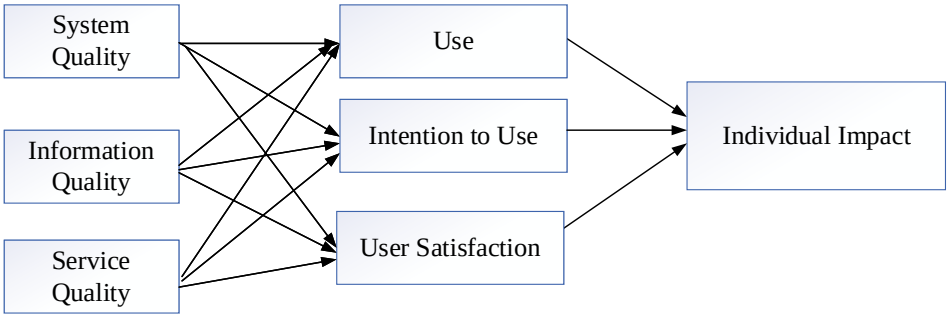


Figure 3. The conceptual model

Based on this model, the following assumptions are made.

*H1: A quality e-learning system will increase the impact on the individual.*

*H2: The quality of e-learning information increases the impact on the individual.*

*H3: The quality of e-learning services will increase the impact on individuals.*

*H4: Consumption, future attitudes, or satisfaction increase the impact of e-learning systems, information, and service quality on the individual.*

## POPULATION AND SAMPLING

The sample size was calculated as follows:

$$m = \frac{Z^2 \times P \times (1-P)}{\varepsilon^2}$$

$$n = \frac{m}{1 + \frac{m-1}{N}}$$

*Where: m is the sample size when the number of populations is unknown; n is the sample size; Z-95% probability level Z value (1.96); P-probability level (0.5); - sampling error (0.05); N-Population (20518 students)*

$$m = \frac{Z^2 \times P \times (1-P)}{\varepsilon^2} = \frac{1.96^2 \times 0.5 \times (1-0.5)}{0.05^2} = 384.1 \approx 384$$

$$n = \frac{m}{1 + \frac{m-1}{N}} = \frac{384}{1 + \frac{384-1}{20518}} = 376.9 \approx 377$$

The survey covered 685 students, which is higher than the estimated sample size (377), increasing the reliability of the sample. MS-Excel and IBM SPSS Statistics25 were used to process the survey results.

## RESEARCH INSTRUMENT

A questionnaire with 56 items in 7 groups was developed to collect data from 685 undergraduate and graduate students of the Mongolian University of Science and Technology through forms.microsoft.com. Cronbach's alpha coefficient was used to test the reliability of the survey questionnaire. The Cronbach's alpha coefficient is not a statistical test, but only a coefficient of reliability. Reliability refers to the assessment of the degree of compatibility between the measurement variables of many subsections or the internal stability of measurement. In other words, the coefficient is a measure of the internal stability /reliability of the questionnaire and examines the relationship between the group and the set. Internal compatibility is acceptable if the Cronbach alpha value is at least 0.7. The results of the analysis show that the Cronbach alpha is at an appropriate level, which indicates the reliability of the questionnaire and the internal compatibility of the variables. (System quality -0.933; Information quality -0.867; Consumption -0.932; Future trends -0.942; Individual impact -0.958). Therefore, in the future, it will be possible to evaluate and analyze the model using the results of the survey.

## RESEARCH METHODOLOGY

***Mediator variable and mediating analysis:*** If a research study includes measures of a mediating variable as well as the independent and dependent variable, mediation may be investigated statistically [18]. In this way, mediation analysis is a method to increase the information obtained from a research study when measures of the mediating process are available. Most of the economic and social science research focuses on relations between two variables, X and Y, and much has been written about two-variable relations, including conditions under which X can be considered a possible cause of Y. The mediator variable is the simplest form that represents the addition of a third variable

to this X → Y relation, whereby X causes the mediator, M, and M causes Y, so X → M → Y. In other words, a mediator variable is a variable that causes mediation in the dependent and the independent variables. In other words, it explains the relationship between the dependent variable and the independent variable. Mediation is only one of several relations that may be present when a third variable, Z (using Z to represent the third variable), is included in the analysis of a two-variable system. Mediation tests whether the effects of X (the independent variable) on Y (the dependent variable) operate through a third variable, M (the mediator). In this way, mediators explain the causal relationship between two variables or "how" the relationship works, making it a very popular method in social research[19,20,21]. There are three major approaches to statistical mediation analysis: (a) causal steps, (b) difference in coefficients, and (c) product of coefficients[22]. All of these methods use information from the following three regression equations:

$$y = a_0 + bx + \varepsilon_0$$
$$y = a_1 + b'x + cM + \varepsilon_1$$
$$M = a_2 + dx + \varepsilon_2$$

*where $a_0$ and $a_1$ and $a_2$ are intercepts, y is the dependent variable, x is the independent variable, M is the mediator, b is the coefficient relating the independent variable and the dependent variable, b' is the coefficient relating the independent variable to the dependent variable adjusted for the mediator, c is the coefficient relating the mediator to the dependent variable adjusted for the independent variable, d is the coefficient relating the independent variable to the mediator, and $\varepsilon_0$, $\varepsilon_1$, and $\varepsilon_2$ are residuals.*

In this study, we used Andrew F. Hayes' Process procedure [23] regression analysis to estimate the effect of transmitter or mediator variables.

## RESEARCH RESULTS

General information of respondents: 55.7% of the survey participants were female and 44.3% were male students, while students aged 17-22 accounted for 73.4% of the total participants. In terms of level of study, 77.6% are undergraduate students and 22.4% are advanced students (Fig 4).

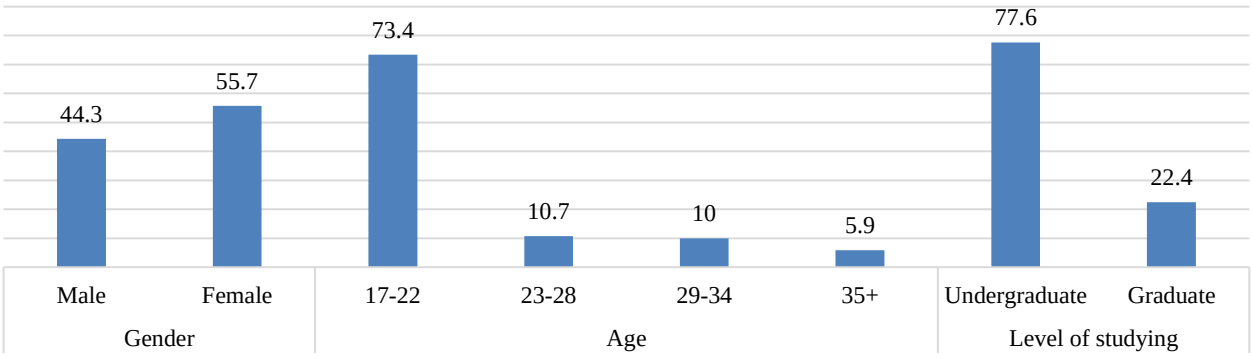


Figure 4. General information of the survey participants

Results of the component analysis: In the test, the Eigenvalue is calculated to be greater than 1 and the absolute value of the variable is greater than 0.6. The KMO (Kaiser-Meyer-Olkin) index is 0.974, indicating that the sample size is sufficient.

Table1. Principal component analysis result matrix

| | Component | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| The e-learning system has made it easier to communicate with teachers | .819 | | | | |
| The use of e-learning has led to more presentations and discussions | .807 | | | | |
| With the use of e-learning systems, I have become more active in participating in seminars | .759 | | | | |
| The e-learning system makes it easier to communicate with other students | .759 | | | | |
| With the use of e-learning systems, homework and homework are better | .753 | | | | |
| E-learning systems can be used to get better grades | .696 | | | | |
| E-learning systems are used to keep up with peers | .673 | | | | |
| The e-learning system has improved the approach to the curriculum | | .702 | | | |
| The e-learning system has had a positive effect on my learning process | | .693 | | | |
| E-learning systems have increased my productivity | | .688 | | | |
| The e-learning system helped me improve my knowledge | | .673 | | | |
| The performance of the e-learning system is good | | .633 | | | |
| An e-learning system makes the task easier to complete | | .616 | | | |
| E-learning systems can store and transmit information at high speeds | | | .776 | | |
| Quick access to e-learning system | | | .753 | | |
| The security of the e-learning system is ensured | | | .720 | | |
| E-learning systems are constantly being improved | | | .708 | | |
| The user interface of the e-learning system is well organized | | | .700 | | |
| An e-learning system allows you to easily find the information you need | | | .698 | | |
| The operation of the e-learning system is reliable | | | .681 | | |
| E-learning systems are always available | | | .674 | | |
| An E-learning system is easy to use | | | .615 | | |
| There is interest in using e-learning systems in the future | | | | .710 | |
| Using an e-learning system is valuable to me | | | | .678 | |
| The use of e-learning systems is recommended for others | | | | .668 | |
| The information in the e-learning system is accurate | | | | | .802 |
| The information in the e-learning system is reliable | | | | | .691 |
| The information in the e-learning system is organized | | | | | .685 |

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 7 iterations.

As a result, the Service quality and the User Satisfaction groups were excluded from the proposed model. This can be attributed to the fact that the need for e-learning systems has not originated based on the market demand or consumer choice, but on sudden need due to the global pandemic. Hence, the original model proposed in the study was modified and the following results were obtained (Fig 5).

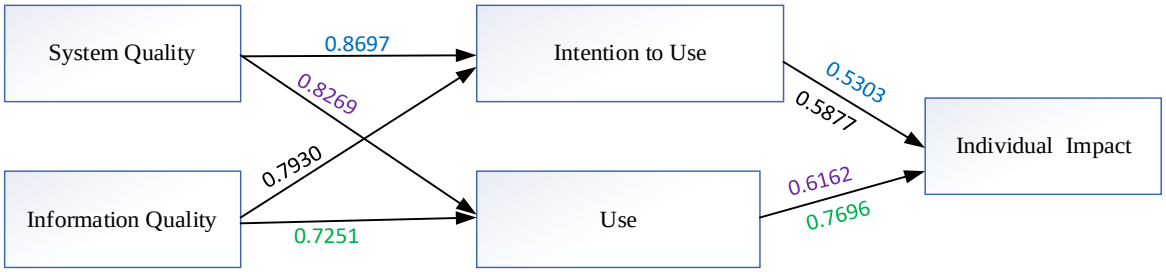


Figure 5. E-learning model

***Consumption as a mediator:***

**The system quality** explains 46.91% of the variations in consumption (R2 = 0.4691) and 50.94% (R2 = 0.5094) of the impact on individuals. In terms of *system quality*, the F statistic is 551.34, p = 0.000, indicating that *use* is determined statistically, and the t parameter of the factor parameter is t = 23.48, p <0.000. Although the *quality of the system* has a statistically significant effect on the individual (0.2707 t = 8.59), the results show that good use increases the benefit to the individual (0.8869 t = 25.45). In terms of indirect effects, the impact parameters of the "*Use*" variable are 0.6162, the standard error is 0.035, and the confidence interval (BootLLCI and BootULCI) is between 0.5437 and 0.6871. Because there is no zero in this range, the Use can be a statistically significant mediator in the relationship between *system quality* and *individual impact*.

```
Run MATRIX procedure:

***************** PROCESS Procedure for SPSS Version 3.5.3 *****************

          Written by Andrew F. Hayes, Ph.D.       www.afhayes.com
    Documentation available in Hayes (2018). www.guilford.com/p/hayes3

**************************************************************************
Model  : 4
    Y  : F12_mean
    X  : F2_mean
    M  : F11_mean

**************************************************************************
OUTCOME VARIABLE:
 F12_mean

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .8875      .7877      .2304   1155.7659     2.0000   623.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant     -.1124      .0811    -1.3865      .1661     -.2717      .0468
F2_mean       .2707      .0315     8.5972      .0000      .2088      .3325
F11_mean      .7452      .0261    28.5787      .0000      .6940      .7964

************************** TOTAL EFFECT MODEL ****************************
OUTCOME VARIABLE:
 F12_mean

Model Summary
          R       R-sq        MSE          F        df1        df2          p
      .7137      .5094      .5315    647.8597     1.0000   624.0000      .0000

Model
              coeff         se          t          p       LLCI       ULCI
constant      .1324      .1225     1.0805      .2803     -.1082      .3729
F2_mean       .8869      .0348    25.4531      .0000      .8185      .9553

************** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y **************

Total effect of X on Y
     Effect         se          t          p       LLCI       ULCI      c_ps      c_cs
      .8869      .0348    25.4531      .0000      .8185      .9553      .8528      .7137

Direct effect of X on Y
     Effect         se          t          p       LLCI       ULCI     c'_ps     c'_cs
      .2707      .0315     8.5972      .0000      .2088      .3325      .2603      .2178

Indirect effect(s) of X on Y:
            Effect     BootSE   BootLLCI   BootULCI
F11_mean      .6162      .0359      .5437      .6871

Partially standardized indirect effect(s) of X on Y:
            Effect     BootSE   BootLLCI   BootULCI
F11_mean      .5925      .0302      .5322      .6514

Completely standardized indirect effect(s) of X on Y:
            Effect     BootSE   BootLLCI   BootULCI
F11_mean      .4959      .0250      .4451      .5442

************************ ANALYSIS NOTES AND ERRORS ************************

Level of confidence for all confidence intervals in output:
  95.0000

Number of bootstrap samples for percentile bootstrap confidence intervals:
  1000

------ END MATRIX -----
```

Figure 6. Results of mediator analysis */Andrew F. Hayes Process procedure regression analysis/*

**The information quality** explains 38.42% of the variations in *use* (R2 = 0.3842) and 43.79% (R2 = 0.4379) of the *impact on individuals*. In terms of *information quality*, the F statistic is 383.76, p = 0.000, which indicates that the *use* is determined statistically significant, and the statistic t of the factor parameter is t = 19.6, p <0.000. Although the *quality of the information* has a statistically significant effect on the individual (0.2370 t = 8.24), it is small, but *good use* increases the *benefit to the individual* (0.7950 t = 21.89). The impact parameter of the "use" variable is 0.5580, the standard error is 0.037, and the confidence interval (BootLLCI and BootULCI) is between 0.4871 and 0.6286, indicating a statistically significant transmitter in the relationship between *information quality* and *individual impact*.

***Intention to use as a mediator:***

**System Quality** explains 43.7% (R2 = 0.4370) of variations of the *intention to use* and 49.31% (R2 = 0.4931) of *individual impacts*. In terms of *system quality*, the F statistic is 374.07, p = 0.000, which indicates that the trend for *intention to use* is statistically significant, and the t parameter of the factor parameter is t = 19.34, p <0.000. Although the *quality of the system* explains the impact on the individual statistically (0.3972 t = 9.4), it is relatively small, but the desire to use it in the future shows that the benefit to the individual will increase (0.8585 t = 21.63). The impact parameter of the "Intention to Use" variable is 0.4613, and the confidence interval (BootLLCI and BootULCI) is

between 0.3805 and 0.5376, indicating that the variable is a statistically significant mediator in the relationship between *system quality* and *individual impact*.

**The Information Quality** explains 36.3% (R2 = 0.36.34) of the variations in *intention to use* and 69.2% (R2 = 0.6923) of the *impact on individuals*. The F statistic of the "Information Quality" variable is 351.7, p = 0.000, which determines the *intention to use* the statistical significance, and the t statistic of the factor parameter is t = 18.7, p <0.000. The impact of information quality on individuals is explained statistically (0.3180 t = 9.5). Although the *quality of the information* alone can explain the *impact on the individual* at 31.8%, a constant or increased individual's *intention to use* it in the future will increase the individual's benefit or 78.4%. (0.7841 t = 21.45). The impact parameter of the "Future Use" variable is 0.4661, and the confidence interval (BootLLCI and BootULCI) is between 0.3992-0.5335, which is a statistically significant mediator in the relationship between *information quality* and individual impact.

Good systems and information quality have been shown to increase the individual's impact by stabilizing the student's use of e-learning platforms and increasing their willingness to use them in the future. On the other hand, even if the system and the information are of good quality, it will have little effect on the individual if the student does not want to use it or is willing to use it in the future. This indicates the need to focus on stabilizing the use of the e-learning platform and stimulating interest in its use. The results of the study are demonstrated in the following table (Table 2).

Table 2. Confirmation of proposed predictions

| Hypothesis | Result |
|---|---|
| *H1: A quality e-learning system will increase the impact on the individual.* | Supported |
| *H2: The quality of e-learning information increases the impact on the individual.* | Supported |
| *H3: The quality of e-learning services will increase the impact on individuals.* | Rejected |
| *H4: Consumption, future attitudes, or satisfaction increase the impact of e-learning systems, information, and service quality on the individual.* | Partially supported |

## CONCLUSION AND RECOMMENDATIONS

In the face of the global pandemic, it is interesting to see whether e-learning systems can be a transmitter of knowledge. Therefore, this study aimed at determining effects of e-learning on students or individuals in our country. As a result of the research, it is possible to identify areas for further development of e-learning.

Analyses demonstrate that regular use can increase the impact on individuals. This illustrates that the quality of the system and information is key to the success of e-learning. Encouraging individual use and motivation for future use, on the other hand, increases the personal impact of e-learning systems. In addition, service quality and customer satisfaction indicators have become insignificant due to the need to use e-learning in response to the pandemic. In order to increase the use of e-learning systems according to market law, there is a need to focus on improving service quality indicators such as responsiveness, accuracy, reliability, responsible flexibility, technical skills, and staff sensitivity, thereby increasing satisfaction.

Therefore, tertiary education institutions need to focus on improving the quality of information, supporting the use of learning platforms, and making the information available to students more effectively. Developing long-term e-learning strategies to support effective quality education for individuals appears to be a priority for universities. In the current situation, it is necessary to make good use of the platforms such as MS Teams, Zoom, Google meets, and Moodle, which are in widely used Mongolian universities, to improve operations, improve teacher technical education, and develop programs and content to meet student needs.

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# EXPERIMENT RESULTS OF CURD PRESSING AND CUTTING EQUIPMENT

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**Abstract.** This article presents the results of an optimized study of the technological equipment of curd filter-pressing and cutting processes by The Mongolian traditional method of curd production. The optimal values of the inlet parameters of the curd filter pressing process are calculated as 2kg of curd weight, 5 kg cm-2 (0.49MPa) of pressing pressure and 3 hours of pressing time for the 59% of the curd moisture content. The moisture content of the curd was 59%, which meets the requirement for moisture content of protein dairy products. Depending on the shrinkage coefficient of the curd, the distance between the wires of the curling device should be 6 cm in length and the implant should be 1.5 cm.

**Keywords:** moisture, weight, duration, size, shrinkage coefficient

## INTRODUCTION

Mongolians have a long history of knowledge and developing to process the milk of their livestocks in accordance with the characteristics of natural and climatic conditions. Mongolians make many different types of dairy products from the milk such as aaruul (dried curd), khuruud and eezgii. Curd is a world-renowned product due to its special health and biological significance [1].

Mongolians produce raw curd in three different ways. These include:

1. Curd from vodka distillation
2. Curd from yogurt
3. Curd produced by enzyme-acid technology.

Traditional curds are made from vodka distillation curd and the yogurt curds, and the basis of the technology of curd production is explained by the theory of thermal acid fermentation [2]. There is the two main methods on thermal acid fermentation. The first one is – heat milk temperature up to 85-900C, make the yogurt pH to 4.7-5.0 by the acidic yogurt or whey milk to turn the milk into curd, and the second one is – to boil the acidic fermented milk and take out the protein by filtering. [3]. The filtered curd need to be dried after pressing and cutting. These operations are interdependent processes and take a total of 4 to 5 days [4].

In order to increase the efficiency of compression (filter-pressing) and save time a curd compression device was designed to determine curd moisture based on curd weight, pressing pressure, and time, and to determine their optimal values [5].

Simplification of milk processing by herder households and farmers, especially curd pressing and cutting in a short time, will make a real contribution to increasing the production and consumption of dairy products, selling them on the market will be the increasing profits, and developing household businesses.

## RESEARCH MATERIALS AND METHODOLOGY

We used yogurt curd in the experiment [2] and performed the test according to the following scheme.

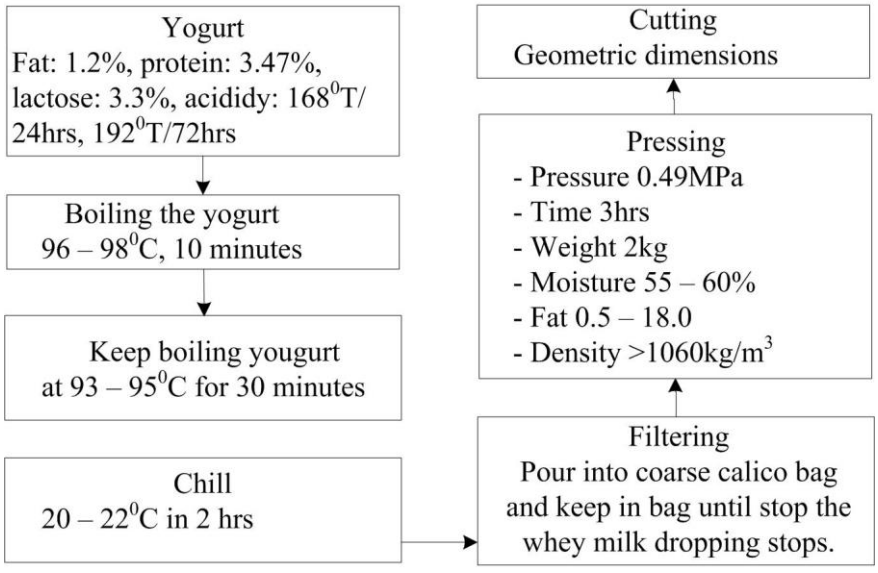


Figure 1. Technological scheme of aaruul making traditional method

**Curd filter-pressing process**

The device can reduce the moisture content of the traditionally made curd [7] until 60%, by using the optimized results of study for the technological factors determining of the curd filter-pressing and coarse calico bag.

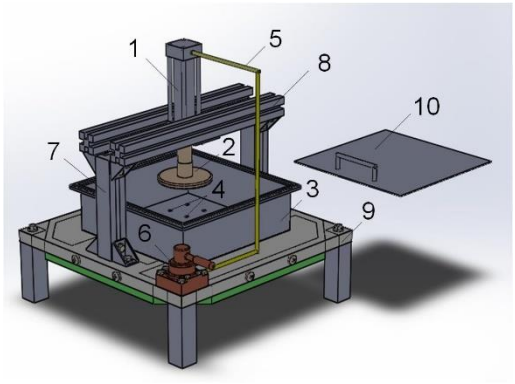


Figure 2. Curd pressing device with air pump

1 – pneumatic cylinder, 2 – pressing plate, 3 – drainage vessel, 4 – whey drainage holes, 5 – plastic tube, 6 – hydraulic valve, 7 – vertical pillar, 8 – horizontal pillar, 9 – base platform, 10 - square lid

The general design of the objectives of the main parameters for the operation of the machine was chosen as follows in Figure 3.


Figure 3. General design of the objective

Here: Multi factored inlet parameters: $x_1$ – curd weight; $x_2$ – pressure; $x_3$ – duration; outlet parameter: $y_1$ – curd moisture, %

$$y_1=f(x_1, x_2, x_3) \rightarrow 55-80\%$$

Parameter levels that represent y-value are determined not only by the values of $X_{imax}, X_{imin}$, but by box planning or second-order rotatable planning with 3rd and 5th grade changes *(Avdai and Enkhtuya, 2017).* Optimum values of the inlet parameters are defined by the preliminary tests as demonstrated in Table 1.

Table 1. Experimental conditions

| EFFECTIVE PARAMETERS | CHANGED VALUES OF EFFECTIVE PARAMETERS | | | | | $J_i$ |
|---|---|---|---|---|---|---|
| | $-x_a$ | $x_{min}$ | $x_{i0}$ | $x_{imax}$ | $+x_a$ | |
| | **-1.682** | **-1** | **0** | **+1** | **+1.682** | |
| CURD WEIGHT $X_1$ [KG] | **0.182** | **2** | **2.5** | **3** | **4.682** | **0.5** |
| FILTER PRESSING PRESSURE $X_2$ [KG·CM$^{-2}$] | **1.318** | **3** | **4** | **5** | **6.682** | **1** |
| DURATION, $X_3$ [MIN] | **118** | **120** | **150** | **180** | **181.682** | **30** |

Moisture content of the filter-pressed curd has to be not lesser than 55 % [9]. The moisture value of the filter pressed curd is determined by the standard 'Method for the determination of moisture and dry matter in milk and milk products' MNS 401: 75 *("Standard of method for determination of moisture and dry matter in dairy products. MNS 0401:1975", 2009)* [10].

**Determine the distance between the wires of the cutting device**

The filter-pressed curd cut by same distanced caliper of the sewing thread, and 19 samples were prepared for drying process.

Figure 4. Photo of the samples of filter-pressed and cut curds

The average geometric size of the samples were 3.95 cm long; width 2.57 cm; and the thickness was 1.58 cm. 6 samples are dried on tray with other curds; and at 50°C in a drying oven. The weight of the samples were measured in every one hour on the electronic balance G&G 0512 - 52671954 with an accuracy of 0.01g.


Figure 5. Photo of measuring of the aaruul weight

Mathematical and statistical processing of the measured values was performed to verify that whether the over-emission variables are governed by the laws of normal distribution [11].

## RESULTS OF THE RESEARCH

**Curd filter-pressing process.** The results of the curd filter-pressing experiments were recorded and shown in Table 2.

Table 2. Experimental matrix and the results

| № | STANDARD MATRIX | | | EXPERIMENTAL MATRIX | | | OUTLET PARAMETERS | |
|---|---|---|---|---|---|---|---|---|
| | **INLET PARAMETERS** | | | **REAL VALUES OF INLET PARAMETERS** | | | | |
| | $x_1$ | $x_2$ | $x_3$ | $X_1$ | $X_2$ | $X_3$ | $y_1$ | $y_2$ |
| 1 | - | - | - | **2** | **3** | **120** | **66.8** | **66.4** |
| 2 | + | - | - | **3** | **3** | **120** | **66.6** | **66.6** |
| 3 | - | + | - | **2** | **5** | **120** | **64.2** | **65** |
| 4 | + | + | - | **3** | **5** | **120** | **65.6** | **63.2** |
| 5 | - | - | + | **2** | **3** | **180** | **60.4** | **63.6** |
| 6 | + | - | + | **3** | **3** | **180** | **65.6** | **65** |
| 7 | - | + | + | **2** | **5** | **180** | **58.6** | **60.2** |
| 8 | + | + | + | **3** | **5** | **180** | **62.6** | **63.2** |
| 9 | **-1.682** | **0** | **0** | **0.182** | **4** | **150** | **57** | **58.6** |
| 10 | **+1.682** | **0** | **0** | **4.682** | **4** | **150** | **68.4** | **68.2** |
| 11 | **0** | **-1.682** | **0** | **2.5** | **1.318** | **150** | **69.6** | **69.6** |
| 12 | **0** | **+1.682** | **0** | **2.5** | **6.682** | **150** | **64** | **64.5** |
| 13 | **0** | **0** | **-1.682** | **2.5** | **4** | **118** | **64.4** | **62** |
| 14 | **0** | **0** | **+1.682** | **2.5** | **4** | **181.682** | **58.2** | **60.6** |
| 15 | **0** | **0** | **0** | **2.5** | **4** | **150** | **58.8** | **59** |
| 16 | **0** | **0** | **0** | **2.5** | **4** | **150** | **61** | **59.4** |
| 17 | **0** | **0** | **0** | **2.5** | **4** | **150** | **62.6** | **65.6** |
| 18 | **0** | **0** | **0** | **2.5** | **4** | **150** | **63.8** | **66.8** |
| 19 | **0** | **0** | **0** | **2.5** | **4** | **150** | **63** | **62** |
| 20 | **0** | **0** | **0** | **2.5** | **4** | **150** | **64** | **65.4** |

The mathematical processing of the numerical values of the measurements was governed by the law of normal distribution, and the calculated value of the Shapiro and Wilka W criteria was $W_T$ = 71.23, which allowed the value in the table to be greater than $W_X$ = 0.96. The calculated value of the Cochrane criteria G, $G_T$ = 0.203 is less than that of the table, $G_X$ = 0.2705, indicating that the dispersion is homogeneous. Regression coefficients for factor dependence has been determined and a multivariate regression model (eq.1) for dependence has also been obtained.

$$y = 62.5494 + 1.9516x_1 - 1.3321x_2 - 1.3902x_3 + 1.5667x_2^2 - 0.4228x_3^2 \qquad (1)$$

When the regression model was tested by Fisher's test, the calculated value of the test was F_T = 0.56, and F_T <F_X = 2.71, so our model proved to be similar.

We are determined the real model by putting these values in our model $x_1 = \frac{X_1 - 2.5}{0.5}$; $x_2 = \frac{X_2 - 4}{1}$; $x_3 = \frac{X_3 - 150}{30}$,

$$y = 79.546 + 3.903X_1 - 13.858X_2 + 0.095X_3 + 1.565X_2^2 - 0.00047X_3^2 \quad (2)$$

By dissociative steps method, the optimum inlet values, when the outlet value is at minimum level, are determined from the real model and the results are shown below $X_1 = 2\ kg$, $X_2 = 5\ kg \cdot cm^{-2}$, $X_3 = 180\ min$, curd moisture y=59%..

**Determine the distance between the wires of the cutting device.** The values of the measurements before and after drying of the samples are shown in Table 3.

Table 3. The comperative weights after the drying process

| Sample number | Initial | After | Initial | After | Initial | After |
|---|---|---|---|---|---|---|
| | Length [cm] | | Wide [cm] | | Thickness [cm] | |
| 1 | 4 | 3.2 | 2.5 | 2.1 | 1.7 | 1.3 |
| 2 | 4 | 3.2 | 2.7 | 2.3 | 1.7 | 1.3 |
| 3 | 3.9 | 3.1 | 2.5 | 2 | 1.6 | 1.3 |
| 4 | 3.8 | 3 | 2.6 | 2.1 | 1.7 | 1.2 |
| 5 | 3.8 | 3 | 2.6 | 2.2 | 1.6 | 1.2 |
| 6 | 3.9 | 3 | 2.7 | 2.25 | 1.6 | 1.2 |
| 7 | 4 | 2.9 | 2.7 | 2.25 | 1.6 | 1.2 |
| 8 | 4.1 | 3.2 | 2.3 | 1.95 | 1.5 | 1.2 |
| 9 | 3.75 | 3.15 | 2.6 | 2.2 | 1.5 | 1.1 |
| 10 | 4 | 3.15 | 2.6 | 2.3 | 1.45 | 1.1 |
| 11 | 4.1 | 3.25 | 2.3 | 2.1 | 1.5 | 1.2 |
| 12 | 3.8 | 2.95 | 2.7 | 2.2 | 1.5 | 1.2 |
| 13 | 4 | 3.05 | 2.7 | 2.25 | 1.5 | 1.15 |
| 14 | 3.7 | 2.95 | 2.6 | 2.2 | 1.6 | 1.3 |
| 15 | 4.1 | 3.3 | 2.4 | 2.1 | 1.5 | 1.25 |
| 16 | 4.1 | 3.25 | 2.3 | 2 | 1.7 | 1.25 |
| 17 | 4 | 3.3 | 2.7 | 2.1 | 1.6 | 1.25 |
| 18 | 4.1 | 3.2 | 2.8 | 2.3 | 1.5 | 1.2 |
| Arithmetic mean | 3.95 | 3.12 | 2.57 | 2.16 | 1.58 | 1.22 |
| Dispersions | 0.02 | 0.02 | 0.02 | 0.01 | 0.01 | 0.00 |
| Square mean or standard deviation | 0.13 | 0.13 | 0.16 | 0.11 | 0.08 | 0.06 |
| Coefficient of variation | 3.37 | 4.12 | 6.08 | 5.05 | 5.36 | 5.08 |
| Mean value error | 0.03 | 0.06 | 0.16 | 0.07 | 0.12 | 0.05 |
| Average square deviation error | 0.80 | 2.03 | 6.41 | 3.02 | 7.58 | 4.15 |
| Calculated value of the Shapiro and Wilk's criteria $\boldsymbol{W}_{\text{T}}$ | 253.2 | 267.5 | 251.2 | 264.4 | 244 | 254.9 |

For mathematical statistical processing of the measured values, the variation coefficients are being V = 3.37-6.08, which proves that the size of the curd is uniform and homogeneous.

But the minimum value of the length dimension was subtracted from the measured values. So, the number of samples was reduced to 18, for the further performed calculations.

To test compliance with the law of normal distribution by Shapiro and Wilka's W test, the calculated value is determined by the following formula.

Calculated value of the criteria

$$W_T = \frac{Q^2(m-1)}{\sigma_x^2} \quad (3)$$

The calculated value was m=18 at $W_T = 244 - 283$, and the probability level at P = 0.95 the $W_x$ was equal to 0.897. Therefore, Shapiro and Wilka's W test is satisfied and that the measured values are governed by the law of normal distribution.

The weight of the dried curd in the drying device was measured at every one hour and the following graph was constructed as a result.

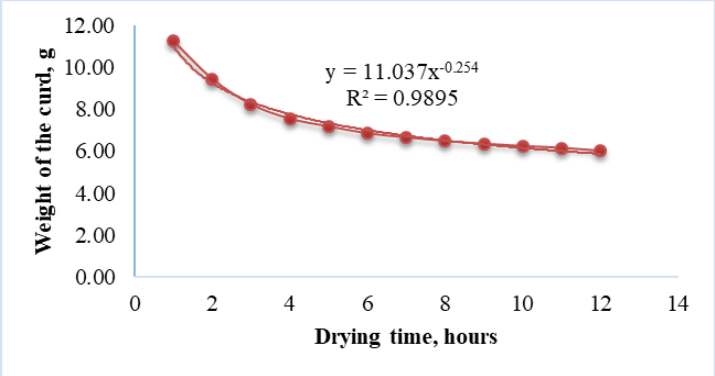


Figure 6. The graph of aaruul weight dependence from the drying time

The graph shows that the weight of curds decreased from 11.26g to 6.01g, and 46.7% of the weight was lost.

The following graph shows the dried curd and its moisture content.

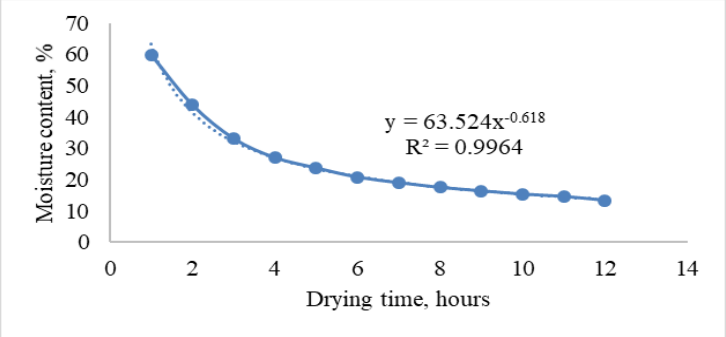


Figure 7. Moisture content dependence graph from drying time duration

General technical requirements for protein dairy products MNS 4230: 2005 standard specifies the moisture content of curd must be as 10 - 20%. The moisture of the curd decreases to 20% after 7 hours after dried at 50°C.

The geometric dimensions of the cut curd during drying and standard moisture values were determined and shown in Table 4.

Table 4. Geometric dimensions of the curd cutting

| | Aaruul | Curd | Aaruul | Curd | Aaruul | Curd | Aaruul | Curd | Aaruul | Curd |
|---|---|---|---|---|---|---|---|---|---|---|
| Length [mm] | 150 | 182 | 100 | 121 | 100 | 121 | 70 | 85 | 50 | 61 |
| Wide [mm] | 50 | 58 | 77 | 81 | 50 | 58 | 50 | 58 | 50 | 58 |
| Thickness [mm] | 10 | 12 | 10 | 12 | 10 | 12 | 10 | 12 | 5 | 6 |

Based on the dimensions given in the table above, it is possible to select the distance between the wires of the curd cutting device and make a design. For example, to make a 15:5:1 cm aaruul, the curd cutter spaces should be spaced 18:6:1.2 cm apart.

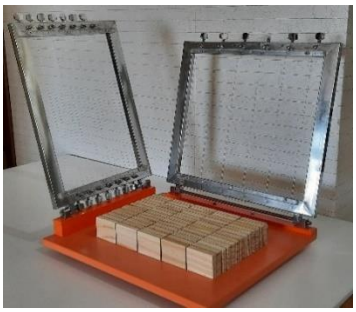

Figure 8. Curd cutting device

## DISCUSSION

Scientist Oyunjargal.Ch developed a model of the cheese pressing process operator and studied the rheology and structure formation process of the cheese. According to the results of the study, the time of compression of the liquid press was 8 times shorter than the traditional method [12].

A scientist Damdinsuren.L had conducted a study on the basics of processing of Mongolian dairy industrial technology and found that the technology of curd filtration technology is suitable for filtering at a temperature of 90 -95$^0$C in 2002, [3].

According to the above studies, extensive research has to be conducted on the physical and chemical properties of dairy products, their use, structure and composition. By using a device with a curd pressing pump, it is possible to reduce the time by 3-4 times compared to the traditional method.

## CONCLUSION

- The optimal values of the input factors for the curd compression process were the curd weight 2 kg, compression pressure 5 kg/cm$^2$, compression time 3 hours, and curd moisture y = 59%. Which meets the requirements of the moisture content of the protein dairy products.
- The curd's linear shrinkage coefficient is defined as 0.0274, and the distance between the wires of curd cutter have to be 6 cm long, 1.5 cm thick for the aaruul with 5 cm long and 1.2 cm thick.

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# THE IMPACT OF CUSTOMER TRUST ON DELIVERY SERVICE REUSE INTENTIONS

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**Abstract**. Under the pressure of e-commerce, the delivery service is a fast-growing industry. In the long history of the postal sector, 2019 was a defining moment. As the sector's traffic, revenue, business models, and infrastructure continued to shift beyond recognition, trends that had been developing gradually for decades gained traction. The global economy has been reshaped by the fight against the COVID-19 pandemic. Governments took extreme measures in reaction to the fast increase in reported instances. At the same time, because postal services have remained to work during most global lockdowns, their importance to people has grown. In addition, in several countries, ecommerce sales have surged, thus boosting demand for postal services. This paper determined Delone and McLean's Information system success model to measure the effect of system quality, e-trust on the reuse intention of the website-based delivery service in Mongolia. Data were collected by surveying 150 customers who had experience, using SPSS 21.0 and AMOS 20.0 statistic package program. The statistical results supported all four proposed hypotheses. The study confirmed the electronic service quality of system quality were significant predictors of e- trust.

**Keywords**: System quality, service quality, e-trust, e-reuse-intention

## INTRODUCTION

2019 was a pivotal point in the postal sector's long history. Trends that had been building slowly over decades picked up speed as the sector's traffic, revenue, business models, and infrastructure continued to transform beyond recognition. The struggle against the COVID-19 pandemic has changed the worldwide economy. Because of their combined impact on the public and private sectors, postal services are vital in every country [1]. The majority of postal offices have served the government, but due to e-commerce and Corona disease, business to consumer, business to business, direct to customer, and other services have evolved in recent years. Every employee, including management, should be focused on providing excellent service to customers. Manufacturers and customers, both domestic and international, have recently been paying more attention to e-commerce, especially during COVID-19 in Mongolia. Mongolia's e-commerce has improved substantially in the last two years. Mongolia's e-commerce infrastructure is relatively advanced. Internet access is available to 2.6 million people out of a population of three million. On a regular basis, 2 million individuals use cellphones, and 1.3 million people use Facebook and Twitter on a daily basis [2]. The postal industry has altered on a regular basis during the fourth industrial revolution, especially in developed countries [3]. As a result of the Fourth Industrial Revolution, businesses have been undergoing a fundamental transition, which has been fueled by the acceptance and development of cutting-edge technologies such as big data and artificial intelligence. In developing economies, some successful postal business models have emerged, resulting in expanded reach and new prospects [4]. The demand for efficient and comprehensive postal services in developing nations is significant both internationally and domestically[5]. The following difficulties confront Mongolia, a developing country. Infrastructure, customs costs, delays, limited shipments, no effective delivery solution, and a strong reliance on foot and manual operations are all factors to consider. The postal sector has evolved from a public and traditional organization to a mix of community and personal operators during the previous few decades. Attempts are being made by public businesses to modify their representation, which has been characterized by an e-SQ requirement (electron service quality). Mongol Post JSC is Mongolia's national postal service. Mongol Post, which was previously state-owned, became a joint stock corporation in 2016 after selling 34 percent of its total shares to the public. Postal services, delivery, and stamp issuance are all handled by Mongol Post JSC. This has resulted in a frenzied state of innovation in the postal services sector, as operators employ these technologies to improve their services and create new ones in response to client demand [6]. Based on postal market development, sector trends, and rapid technical development, the postal sector is undergoing reform and modernisation. For Posts that want to stay relevant, digital transformation has become a strategic imperative. To meet customer demand for electronic services, postal operators around the world are deploying innovative technology (e-services). Other concerns in this category include the appearance of new confidential competitors as a result of liberalization and repair modernisation, particularly in Mongolia's postal sector, and customer satisfaction. However, no research has particularly looked into the dimensions of e-SQ and its implications in the Mongolian postal services industry. Mongol Post JSC is in charge of postal services, delivery, and distribution in Mongolia. On a daily basis, Ulaanbaatar receives 4,000-4500 letters, 450-500 packages and parcels, 100-150 couriers, and 36,000 magazines. Currently, the sorting center takes 23.6 hours to deliver mail, which is then distributed to other branches. Currently, the sorting center takes 23.6 hours to deliver mail, which is then distributed to other branches. The post office and courier are open from 9 a.m. to 6 p.m. Modern consumers' needs, such as on-site delivery, partner organizations, urgent delivery, and accessibility difficulties, are not met by the courier. The postal delivery service will be neither innovative nor responsive to satisfy customer needs. The relationships between both the three essential components of e-services success, e-SQ, satisfaction, and online reuse-intention, are still unclear. This study adds to the body of knowledge in the field of e-services by elucidating the links between e-service quality, e-trust, and reuse intention. To the best of our knowledge, no investigation of this topic has been conducted, particularly in the context of e-services in the Mongolian postal sector. This research offers and evaluates a scale for assessing e-SQ, online trust, and online reuse intent. A model of the interactions between the three constructs is developed and evaluated, with a focus on whether e-SQ in the postal

services sector influences online trust positively and directly.

## THEORETICAL BACKGROUND

### E-Service Quality

Parasuraman, Zeithaml, and Berry [7] define service quality as a customer's judgment of an entity's overall performance. Improvements in user honesty, as well as improvements in a company's operations, competence, and productivity, are all possible outcomes of service value [8]. As a result, it's critical to recognize service quality in the e-commerce industry, as well as what customers value in their online transactions. Zeithaml, parasuraman [9] defines e-service quality as "the extent to which a website supports efficient and effective shopping, purchasing, and delivery of product and services." Previous study has concentrated on the many aspects of e-service quality. Technical adequacy, content quality, information quality, and efficiency are all aspects of e-service quality. The responsiveness, compensation, E-satisfaction, E-trust, and E-service quality of e-recovery services are all clearly important [10]. Passengers' perceptions of a destination may be influenced by the navigation, content, and accessibility of a website. According to the data, awareness does not appear to have an impact on the relationship between e-service quality characteristics and consumer happiness. Finally, consistency somewhat mediates the relationship between the quality of e-services and consumer satisfaction [11]. Websites should address issues such as accessibility, usability, and security, as well as provide information to all stakeholders fairly. As a result, this research paper offers web developers recommendations for improving the accessibility, usability, and security of university websites and prospective student web pages [12]. These findings strongly show that accessibility is associated to e-service satisfaction. The perceived friendliness and ability of the user are strongly influenced by usability [13]. Usability, as defined by Pina, Torres, and Royo (2010) [17], is the ease with which something may be used and navigated. Due to the nature of information technology, e-government promotes not only freedom, but also the advantages of online applications, such as ease. The ability of a client to interact in a multimedia-based interactive environment is referred to as interactivity. Interactivity is exemplified through feedback systems and multiple-choice purchasing options [18]. This study provides information to marketing managers on how customers perceive social commerce and how it affects them, as well as practical and theoretical implications [19]. Localization, website quality, product information, perceived interactivity, price and promotion, e-security, customer value, service quality, electronic word of mouth (eWOM), marketing, and brand promotion were all explored as influences on travellers' hotel choices. Usability, as defined by Pina, Torres, and Royo (2010) [17], is the ease with which something may be used and navigated. Due to the nature of information technology, e-government promotes not only freedom, but also the advantages of online applications, such as ease. The ability of a client to interact in a multimedia-based interactive environment is referred to as interactivity. Interactivity is exemplified through feedback systems and multiple-choice purchasing options [18]. This study provides information to marketing managers on how customers perceive social commerce and how it affects them, as well as practical and theoretical implications [19]. e-security, customer value, service quality, electronic word of mouth (eWOM), marketing, and brand promotion were all explored as influences on travellers' hotel choices.

The factors that influence passengers' hotel booking intents include localization, website quality, product information, perceived interactivity, price and promotion, e-security, customer value, service quality, electronic word of mouth (eWOM), marketing, and brand promotion. Platform interaction, such as rating and feedback, forums and groups, recommendation and referrals, and interactivity, has been the focus of previous platform success studies [21]. Interaction between online and offline channels had a detrimental influence on brand engagement, but a non-significant beneficial impact on high brand involvement [22]. According to the data, customer trust is positively correlated with TAM variables (perceived ease of use and perceived usefulness), M-SERQUAL components (interface quality, interaction quality, and information quality), and personalization [23]. The Smart City program, according to the study's findings, includes the use of E-Government in public services

or an integrated citizen administration service system to improve service quality, allowing citizens to receive faster, easier service and maintaining and updating the citizen database [24]. According to the findings, there is no link between perceived engagement and customer satisfaction with online purchases [25]. The link between website interaction characteristics, brand knowledge, and brand value was investigated using a model established to analyze website interactivity as a tool for internet marketing branding [26]. According to website interactivity theory [27], the following characteristics help to determine platform interaction, which is a first-order formative construct. The evaluation's results indicate some beneficial characteristics of the websites under consideration, as well as significant flaws, particularly in terms of work technique and instructional assistance, as well as interactivity [28]. Interactivity is a crucial component of science education visualizations, according to the findings, and building interactive tools for students to learn geoscience processes and concepts has value. More research is needed to determine the influence of visualization on student topic knowledge learning and its relevance to a more varied student group [29]. In this study, four components of information architecture are used to develop a teaching website for the early warning technical support specialty: content structure, identification, navigation, and interaction. This strategy achieves the integration of information processing and information requirements [30]. Interactivity showed enhanced positive interface assessments and website attitudes only for those experiencing good emotions, which indirectly improved their message attitudes and behavioural intentions toward the anti-drug-driving message, according to the findings. Negative emotions, on the other hand, aided recognition memory of the website's interactive section. The findings suggest how user emotions can be used as a design strategy to improve positive attitudes toward websites [31], bridging the human–computer interaction and cognitive psychology literatures. Interactivity resulted in an inconsistent mediation (suppressor) process with a small overall influence on purchase intention, whereas reputation resulted in a consistent mediation process with a large overall effect on buy intention. The indirect approach through trust had the biggest effect size for the reputation component, whereas the indirect way through perceived value had the smallest effect size [32]. The results suggest that the parameters had a positive impact on increasing E- consumer loyalty. Cultivation, Cultivation, Cultivation, Cultivation, Cultivation, Cultivation, Convenience, Convenience, Convenience, Convenience In general, e-commerce is seen as a forerunner in today's commercial world, as evidenced by its increasing and growing earnings and market share, thanks to its concentration on E-loyalty customers. In general, e-commerce is now seen as a forerunner in commercial organizations, as evidenced by its increasing and growing earnings and market share, thanks to its concentration on the E-loyalty consumer [33]. A conceptual research was designed by Kootenaie and Kootenaie (2021)[34] to assess the links between site quality and client trust. According to the research, consumer trust has a big influence on loyalty. The brand's innovativeness plays a role in online products. In Ghana, Amoako et al. (2021) [35] looked at how better service boosts Uber customers' confidence and how confidence mediates the relationship between repair and client loyalty. There is a link between procedural justice and trust, according to the findings. According to Beerli et al. (2004) [36], consumer loyalty is influenced directly. Service expectations are projected to rise as client loyalty increases. Customer satisfaction and loyalty are indicators of whether a company's trust, service, and value meet the needs and expectations of its customers. All aspects of platform interactivity had a significant impact on purchase intent [37].

*H1-1:Customization should be relatively significant to e-trust.*

*H1-2: Accessibility should be relatively significant on e-trust*

*H1-3: Interactiony will be relatively significant on e-trust*

**E-Trust and E-Reuse-intention**

For online businesses, trust has the greatest impact on overall service quality and consumer satisfaction [38]. The elements that influence a customer's purchasing intent, which is an excellent predictor of future purchases, have been investigated by researchers. In the context of expanding online purchase intents, a previous study looked at social commerce structures, content quality

behaviors, and collective capacities. Trust is a theoretical concept that is commonly interchanged with concepts such as credibility, reliability, and calmness. Trust is a complex concept comprising perceptual, emotional, and behavioral components [39]. According to the current literature on the topic of e-service quality, there are three components to e-service quality: (1) user-focused; (2) user happiness; and (3) outcomes. Profit orientation, homogeneous consumer groups, identifiable tasks, and measurable outcomes are the assumptions underpinning these three metrics [40]. The E-SQ is a major worry since it is so closely linked to the success or failure of an internal firm, such as a delivery service. Website quality, or E-SQ, is a critical factor in determining a customer's web experience [41].

The criteria of usability, communication, trust in the seller, and context familiarity all had a favorable effect on e-satisfaction, according to the findings. E-satisfaction is unaffected by social presence, product presence, interaction, or value for money. Repurchase intentions are influenced by e-satisfaction, either directly or indirectly. Further research will be oriented toward developing a research model with a more detailed object focus in order to gain a more comprehensive knowledge, such as comparing the types of experience and search products [42]. The role of service quality and trust in good word-of-mouth marketing was examined by Gogoi (2021) [43]. The study's main finding demonstrated a substantial link between improved consumer service and greater customer contentment. Customer happiness encourages positive word-of-mouth, which leads to increased customer loyalty [44]. Customer satisfaction is a crucial marketing term since it is associated with repeat purchases, word-of-mouth marketing, and customer loyalty. For online shops, trust has the biggest impact on overall service quality and consumer satisfaction. Customers' intention to make a purchase from an online website after weighing all of the elements that are significant to them is referred to as purchase intention. It's critical to study customer intent because it's usually possible to predict their behavior based on their intentions [45]. According to Ali (2016) [45], pleased customers have a major impact on purchase intent. It looks at how well customers understand the many types of postal services available in Greece, as well as which ones they prefer. Consumer trust is always important in maintaining company relationships, particularly when e-commerce businesses need customers to pay before getting purchases, despite the fact that customers cannot feel or touch the actual items delivered except through images [46].

*H3: E-Trust should be relatively significant on the reuse-intention*

## RESEARCH DESIGN

### Research Model and Measures

The original DeLone & McLean Success Model provided a comprehensive method for analyzing the success of information systems. The new, updated model is built on empirical and theoretical contributions from researchers who have investigated or argued the creative model. Figure 1 shows an updated model using six interrelated indicators of information system success. System quality, information quality, service quality, usability, user satisfaction, and net benefits are all factors to consider.

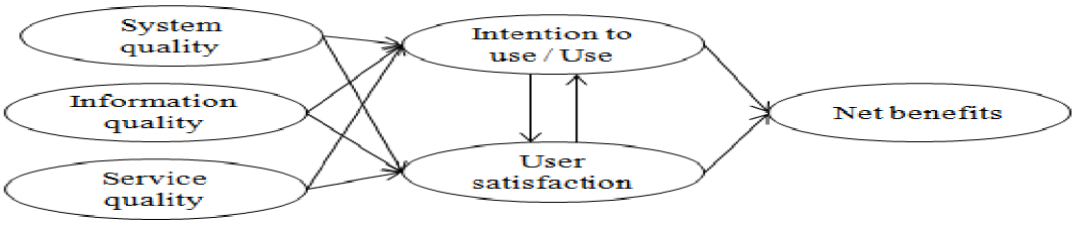


Figure 1. Conceptual model

The primary improvements to the original model include (a) the addition of service quality to reflect the importance of service and support in successful IS systems, and (b) the collapsing of individual impacts and organizational impacts into a more parsimonious net benefits construct [47]

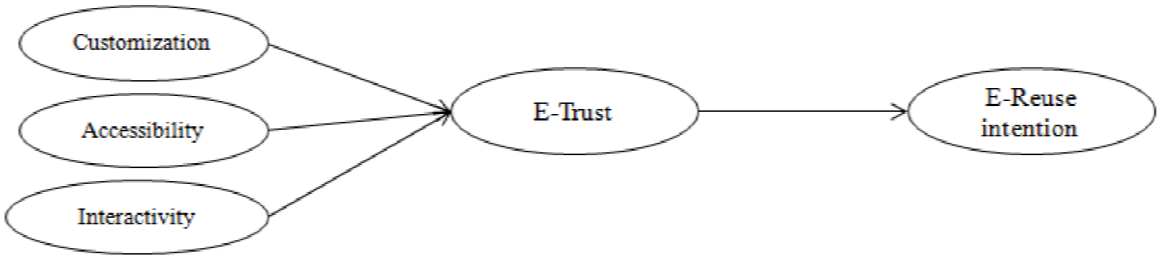


Figure 2. Research model

Measures in this study were supplemented and modified based on previous researches. First, for this measurement items for characteristics of service quality have been adopted from Parasuraman et. al.[9], Shi et. al.[48].

And each component has been adapted to prepared the purpose of the study. Second, measures for customer satisfaction have been hired from Panagiotis Lykogiannis et. al.[49], Sang Suk Lee[50]

All structures are measured on a seven-point Likert. Several 188 surveys were used to collect 150 respondents were used for final analysis. Expect 38 questionnaires with irrelevant data and missing values, using SPSS 21.0 and AMOS 20.0 statistic package program. [Table 4] shows the measurement items and related sources.

Table 4. Measurement scales

| Construct. | Items |
|---|---|
| Customization (CU) | CT1. I feel that my personal needs have been met when using this site. |
| | CT2.This site provides me with information according to my preferences. |
| | CT3. I feel that site has the same norms and values as I have. |
| | CT4. I feel secure when providing private information to this site. |
| Accessibility (AC) | AC1. This postal company system's high speed of page loading. |
| | AC2. This postal company system's accessibility of the site |
| | AC3. This postal company system's accessibility of the site |
| | AC4. This postal company system's logical layout. |
| Interactivity (IT) | IT9. This postal company provides interactive feedback between customers and the company |
| | IT10. This postal company provides follow-up services to customers. |
| | IT9. This postal company provides message board forum for customers-to customers. |
| | IT10. When promises to do something by certain time, they should do it |
| E-Trust (ET) | CT1. I trust the web site to keep my personal information safe |
| | CT2. I trust the web site administrators will not misuse my personal information |
| | CT3. I am happy with the standards by which this company is operating. |
| | CT4. This company operates scrupulously. |
| E-Re (CA) | SI1. I will make more services through this company in the future |
| | SI2. I will increase services through this company. |
| | SI3. I will intensify services through this company |
| | SI4.I will recommend this company to other people. |

**Data collection**

The demographic characteristics of respondents on the various parameters like gender, education, time of stay, postal services, and country are represented as follows: characteristics of service quality of consumer satisfaction in the postal service and to confirm the relative for on consumer satisfaction. About the gender of the respondents, two-thirds of the respondents were female (77.5%) and one-

third of the respondents were male (19.80%). The fact the women are being served requires that appropriate services be provided to female clients. Table 2 shows that the greater part of respondents matured 30 to 39 years accounted for 43% of the full amount participants. People in a group are the age at which they engage in many prolific activities in their daily lives.

In particular, the needs of women aged 30-39 need to be studied and services improved. However, this study only shows selected customers. International parcels (EMS) used 47.77 percent of all customers, 33.56 percent used domestic delivery services, and 10 percent used newspaper subscription services. In recent years, the company's business has grown a certain percentage of the consumer.

Table 5. Respondents

| Division | Item | Frequency | Rate(%) |
|---|---|---|---|
| Gender | Male | 59 | 39.3 |
| | Female | 91 | 60.7 |
| Age | 20's | 36 | 24 |
| | 30-39 | 62 | 41.3 |
| | 40-49 | 31 | 20.7 |
| | 50-59 | 21 | 14.0 |
| Education | High school | 30 | 20 |
| | Technical college (some) | 11 | 7.3 |
| | Bachelor's Degree | 66 | 44.0 |
| | Master's degree and over | 41 | 27.3 |
| | Other | 2 | 1.3 |
| Postal services (Which have used) | Newspaper | 25 | 16.7 |
| | EMS | 50 | 33.3 |
| | Mark | 12 | 8.0 |
| | Logistics | 13 | 8.7 |
| | Other delivery | 50 | 33.3 |

## RESULTS

### Reliability analysis

Reliability analysis examines the relationship between each group of questions. This measurement is consistent with the inside compatibility of acceptable structures when the rate of Cronbach's Alpha is above .70 . As be able to be seen from [Table 6], the Cronbach Alpha coefficients are upper than the recommended values (.839 -.955). From these figures, it can be seen that our objects have high-quality internal densities in each dimension, in short, that our statistics are significant and have the required reliability.

Table 6. Reliability analysis

| Constructs | | Items | Cronbach's Alpha |
|---|---|---|---|
| Service Quality | Customzation | 3 | .847 |
| | Interactivity | 4 | .954 |
| | Accessibility | 3 | .839 |
| Customer Satisfaction | | 4 | .903 |
| E-Trust | | 3 | .955 |
| Reuse intention | | 4 | .844 |

**Confirmatory Factor Analysis**

To evaluate the measurement model, we performed a covariance matrix validation factor analysis using AMOS 20.0. To improve the applicability of the model, the EM5, EM6, AC4 metrics with a standard load value equal to or less than 0.6 have been deleted. For well-matched models, with the goodness of fit data $x^2$=495.68 (p-value=.000), (the degree of freedom-df)=328, (the goodness-of-fit index)=.920(≥.90), (AGFI)=.870(≥.80), (the root mean square residual)=.092(≤.08), (the root mean square approximation error)=.041(≤.05). The model adjustment is acceptable, and the model we propose is tailored to our data after considering the sample size. The proposed threshold is greater than 0.70 for CR and 0.50 for AVE when examining the combined validity (CR) and the mean combined variance (AVE) followed by the combined validity. According to the analysis, CR values were found to be 0.70(0.846~0.955) and AVE values over 0.5(0.648~0.876) for all variables. Therefore, the analysis could be reflected to have reliability and convergent validity.

Table 7. Confirmatory Factor analysis

| Constructs | Item | Std. | S.E | t-Value | CR | AVE |
|---|---|---|---|---|---|---|
| Customization | CU4 | 0.979 | 0.944 | 15.785 | 0.978 | 0.918 |
| | CU3 | 0.959 | 0.963 | 16.389 | | |
| | CU2 | 0.944 | 0.936 | 17.735 | | |
| | CU1 | 1 | 0.988 | | | |
| Accessibility | AC4 | 0.975 | 0.921 | 20.51 | 0.954 | 0.838 |
| | AC3 | 1 | 0.927 | | | |
| | AC2 | 0.951 | 0.884 | 17.849 | | |
| | AC1 | 0.975 | 0.929 | 20.818 | | |
| Interactivity | IT4 | 0.984 | 0.955 | 17.575 | 0.963 | 0.868 |
| | IT3 | 0.925 | 0.862 | 17.838 | | |
| | IT2 | 0.986 | 0.957 | 25.675 | | |
| | IT1 | 1 | 0.950 | | | |
| E-Trust | ET1 | 0.937 | 0.895 | 26.101 | 0.960 | 0.856 |
| | ET2 | 1 | 0.942 | | | |
| | ET3 | 0.966 | 0.939 | 23.376 | | |
| | ET4 | 0.995 | 0.928 | 22.225 | | |
| Notes: $x^2$= 188.298, d.f.=145, p=.000, GFI=.898, AGFI=.853, RMR=.077, RMSEA=.045 | | | | | | |

**Correlation Analysis**

The correlations among the variables were analyzed. As a result of comparing the correlation of all two variables and square the root value of AVE, the correlation value is lower than the square root value of all AVE. In addition, no pair of measures was found with a correlation that exceeds 0.9, indicating no multicollinearity exists among the construct.

The correlation matrix shown in [Table 8] supports a predictable positive relationship between the studied variables with high statistical significance.

Table 8. Correlation Analysis

| | Customization | Accessibility | Interactivity | E-Trust | E-Reuse intention |
|---|---|---|---|---|---|
| Customization | **.918** | | | | |
| Accessibility | .605 | **.838** | | | |
| Interactivity | .501 | .587 | **.868** | | |
| E-Trust | .578 | .785 | .745 | **.858** | |
| E-Reuse | .508 | .666 | .585 | .748 | **.856** |

**Path Analysis**

To test the hypothesis established in this research paper, covariance structural analysis was conducted and the results are shown in Table 9. For models with goodness of fit to results are: CMIN= 141.737, CMIN/df=140, p=.000, GFI=.920, AGFI=.879, RMR=0.80, RMSEA=.009. Majority of indices show that they are above the baseline. The hypothesis test results are as follows. Customization has significant effect on e-trust of postal service. The H1-1 hypothesis is accepted (Estimate=.126, p=.042). Accessibility has significant positive effect on e-trust. The H1-2 hypothesis is accepted (Estimate=.484, p=.075). Interactivity has significant positive effect on e-trust. The H1-3 hypothesis is accepted (Estimate=.380, p=.000). E-trust has significant positive effect on reuse intention. The H2 hypothesis is accepted (Estimate=.923, p=.000).

Table 9. Path Analysis

| Hyp. | Path | Std. Estimate | S.E | T-value | Sig | Result |
|---|---|---|---|---|---|---|
| H1-1 | Customization → E-Trust | .126 | .062 | 2.03 | .042 | Accepted |
| H1-2 | Accessibility→ E- Trust | .484 | .084 | 5.75 | .075 | Accepted |
| H1-3 | Interactivity → E-Trust | .380 | .064 | 5.93 | .000 | Accepted |
| H2 | E-Trust → Reuse-intention | .923 | .065 | 14.22 | .000 | Accepted |
| Notes: $x^2$ = 141.737, d.f.=140, p=.000, GFI=.920, AGFI=.879, RMR=0.80, RMSEA=.009 | | | | | | |

## CONCLUSION

The sample includes 150 survey participants from all over Mongolia. During this time, the survey was sent to respondents online and offline. As we know, the post office has a fairly conservative position in advertising, pointing out that retailing activity has not been administered perfectly. This study is opening a new gateway to the postal service in Mongolia how to submit in the future to retain its market share, even to get better profitability. This study is to identify how delivery service quality affects customer satisfaction and update the basic service quality model, then information to delivery service companies and foreign-invested companies in making strategic decisions. The result is the variable service quality, which consists of indicators, accessibility, and complaint handling create an effect on customer satisfaction. The accessibility dimension promotes high satisfaction to the customers. Accessibility needs to be enhanced by investment in their digital platform to serve and payment for postal services. Receiving complaints has a relativelily significance on customer satisfaction. The Mongol Postal Service must improve to settle topical issues, complaints within due time, to resolve the financial issues related to a lost parcel. Based on the conclusions of analysis that has been performed, a brief as follows: First, there is an important perception of the excellence of repair in the Mongol Postal Service. Second, there is a significant and positive picture of customer satisfaction in Mongolia. This means that more customers are satisfied with Mongolia's postal service. Customer confidence is fully in line with customer satisfaction, which means you will feel better about customer satisfaction. We need to understand the needs of our customers, which is becoming easier with the services we provide. Customer belief has a relative significance to customer loyalty, consumer pleasure a relatively significance to consumer truthfulness. The excellence of service is relativily significant on customer approval. The advanced the quality of service, the higher the fulfillment of Mongolian postal service users.

## LIMITATION AND FUTURE STUDIES

This study, like many others, has its own limitations. Several limitations suggested in this article may provide additional information. A limitation of participants in the current study is one of the factors that might have influenced the results negatively. Due of a shortage of time, we only had 150 people in Ulaanbaatar, Mongolia. Increasing the sample size and carefully testing this model, so that future research may be generalized. Data was collected from Mongolia's only capital city, which may not represent an entire country's population. It is highly suggested that future studies include a more

different group of people. The Mongolian Postal Company should pay more attention, create greater access, and develop better regulations for managing e-service quality and consumer satisfaction, according with practical consequences.

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# EDUCATIONAL INNOVATION: PHILOSOPHICAL ANALYSIS ON THE CONCEPTS OF POST-INDUSTRIAL SOCIETY

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**Abstract.** The triad of science, technology and innovation has become a gateway to the development and a fundamental principle of economic development of the developed countries of the world. So we need to look at what high technology is, how much opportunity there is to develop it in Mongolia, and what we Mongolian scientists can do today. Twenty-first century classrooms will be technologically advanced places of learning, with VR technology significantly increasing students' engagement and learning. VR experiences will inspire a whole new generation of young and bright students, ready to innovate and change the world.

**Keywords:** Educational innovation, Pre-industrial, industrial and post-industrial society, VR (virtual reality) education

## INTRODUCTION

The triad of science, technology and innovation has become a gateway to the development and a fundamental principle of economic development of the developed countries of the world. Leaders, politicians, scientists and businessmen around the world have agreed that high technology is one way to integrate and develop them. The term 'high technology' has been around for half a century, but in less than a decade it has become more pronounced. In every country, scientists are overwhelmed by research to develop high technology, work on new scientific breakthroughs, and succeed in introducing scientific achievements into production and services. So we need to look at what high technology is, how much opportunity there is to develop it in Mongolia, and what we Mongolian scientists can do today. Nowadays, in international practice, high technology is a high-tech field of science that is emerging and evolving at the intersection of many recent scientific advances, such as physical chemistry, molecular biology, and electronics. These areas include nanotechnology, biotechnology, information technology, robotics, and automation technology. Also is in the spotlight of energy scientists.

Educational innovations are understood as a procedure or method of educational activity that differs significantly from established practice and is used to increase the level of efficiency in a competitive environment. With the rapid changes in the contemporary society, the new conditions have been created in the mutual interrelation of techno economic, political, social and cultural spheres. This, in turn, creates the need to enrich the researches on the theories and methodologies of social philosophy and to explore any new approaches. In the Mongolian case, the philosophical concept of post-industrial society has to play an important role in building the multi-dimensional economic structure. In accordance with the concept, the post-economy must be built by the micro- intelligence firms that are compatible and are based on the Mongolian people's mind, creativity competence and values as well. The advantages of the nature of the post-economy are to improve the traditional structure of academic life at universities, to increase the member of scientists with an intellectual property right and Know-How and to export the intellectual services and products of individuals at the global market. These processes created the need to investigate the topic from all perspectives. The concept of the post-industrial society is the trend attitude of development. It corresponds to the developmental policies in Mongolia and also, it has been the real need to discover a new research field for the social science scholars.

## LITERATURE REVIEW

Many researches and hundreds of works have been published to promote the concept of post-industrial and information societies. The sources used in the dissertation can be divided into the parts: primary and secondary; and Russian and Western scholars' works. The primary sources to promote the concept of post-industrial society were originated from the ideas of a new society created by the positivists of the XIX century and other philosophers and futurologists, By the beginning of the XX century, a large number of sources including interesting research articles, books, theories, concepts and paradigms, new terms and terminology had already been published and created and also, the researches on the post-industrial and information societies had been conducted covering all the trends of social philosophy. There are many national scientists' research works on the above issues.

For the statistical research data of the study, the various projects, programs and reports implemented and completed by both governmental and non- governmental organizations and thematic surveys on population and apartment census can provide a general description of information society. Regarding the international experiences, the university-based high technology development strategies are being used to develop science, technology, innovation, intellectual property and knowledge-based economy in the USA, Germany and Japan, while Russia uses the strategies to develop information society in real life. Since Geneva and Tunisia Declaration were adopted in 2003 and 2005, there has been urgent need to transfer to the information society for the whole nations in the world.

*Aim of the study*: Theoretical aims of the study are to examine the commonalities and differences in methodological basis and global characteristics of the concepts of post-industrial, super-industrial

and information societies; to identify their philosophical ideas; and to determine how the novelties and significance of the concepts are reflected to the social practice.

*Objectives of the study*: To achieve the proposed goals, the study intends to accomplish the following objectives:

1. To analyze the negative comments on the concepts of post-industrial society by clarifying the mutual interrelation and nature of the basic factors of current social changes theoretical knowledge and technology, information and services; and by determining the real and abstract factors which influenced on the formation of paradigm of post-industrial society:

2. To determine the scientific values of the comparative studies on Bell's research on definition of the post-industrial society based on the comparison of pre-industrial and industrial societies with Toffler's research on the changes in the characteristics of the industrial and super-industrial societies;

3. To make an attempt to clarify how the information society's characteristics, principles, nature, values, civilization, technology and cultural changes relate to the current situation and practice of post-industrial society from the philosophical point of view;

4. To provide the possible ideas of how to apply the theories of post-industrial society to defining future tendencies of development and to examining the real situation of Mongolian society.

## METHODOLOGICAL OVERVIEW

The distinctive methodological characteristics of the dissertation are:

1. The use of the contrastive approach - to compare the concepts of post- industrial, super-industrial and information societies and to explain the main concepts based on the general methodological principles

2 The use of research methods, principles and approaches of philosophy - to provide a detailed description of the concepts.

## FINDINGS AND DISCUSSION

*Novelty of the study*: This study is the attempt to find possibilities to apply the philosophical concepts of information society to the social and economic development of Mongolia by identifying the new and classic meanings of the concepts of post-industrial and information societies; and by bringing the philosophical ideas of information society to science.

*Theoretical importance of the study*: In comparing and contrasting the concepts of post-industrial society and their alternative forms formulated in the second half of the XX century, the study makes an important contribution to the further research on social philosophy in Mongolia by applying the new modern approaches and concepts.

*Practical importance*: The study will help students gain a better understanding about scientific knowledge on contemporary trends of social development and changes as well as they can certainly benefit from this research elaborate recommendation concerning the development policies.

*The object of the study*: The study is concerned with the main concepts and principles of post-industrial, super-industrial and information societies and the reflections to the real situation of information society.

*The subject of the study*: The main study focuses on the definitions of contents of concepts of post-industrial, super-industrial and information societies, theoretical knowledge, technology, information, services and their mutual interrelation, the issues on people's creativity competence who receive knowledge and information, their positive and negative influences on the social and economic changes.

Definition of Educational Innovation: Educational innovations are understood as a procedure or method of educational activity that differs significantly from established practice and is used to increase the level of efficiency in a competitive environment. We’ve just divided Educational

Innovation into three big stages: 1.Pre-industrial Society 2. Industrial Society 3. Post-industrial Society

*Evolution of Virtual Education*: (Canada) –Seeing the potential virtual education, the University of Alberta (Canada) offered online courses to their Department of Medical students in 1968. (Duke University)- Virtual education is introduced on a global scale when Duke University provides a Global Executive M.B.A program which is a combination of online and on-campus courses, that is available at various locations in 1999.

Virtual reality can be used to enhance student learning and engagement. VR education can transform the way educational content is delivered; it works on the premise of creating a virtual world — real or imagined — and allows users not only see it but also interact with it. Being immersed in what you're learning motivates you to fully understand it. It'll require less cognitive load to process the information. When students read about something, they often want to experience it. With VR, they aren't limited to word descriptions or book illustrations; they can explore the topic and see how things are put together. It's a well-known fact that people learn best by doing; however, if you inspect modern education, you'll see how little learning actually happens by doing. Students are focused on reading instructions rather than using them in practice. VR in education provides an experience anchor to the instruction. With VR education, learners are inspired to discover for themselves. Students have an opportunity to learn by doing rather than passively reading. A relatively small VR device can even act as a whole science lab. Due to having more control over the learning process, students have a 60% faster learning curve with eLearning. According to Britain's Open University study, VR Education consumes and average of 90% less energy and produce 85% fewer carbon Dioxide emission per students.

## CONCLUSION

Although some Russian and Western scholars criticize Daniel Bells' concepts of post-industrial society, the concept is applicable to the post-industrial countries as well as the advancement of information technology has widely been spread out those countries. However, the post-industrial society, as a post- economic sector, where the theoretical knowledge, technology, and information have been distributed as the innovation products and services, is the basis of economic development. The nature of social changes is based on the methodologies commonly used in the leading sectors of science as well as on the advancement of eco-technology and information technology. Therefore, the post- industrial society is a society where the service technology is created by the unity of mind and computer technologies. Nowadays, the social analysis has been the central point of the UNESCO's philosophical strategies and of the most urgent global issues. On this regard, values of the research on the changes in the post- industrial society have been taken for granted.

5 key properties of good VR learning experiences: Immersive, Easy to use, Meaningful, Adaptable and Measurable. Designers should strive to create the feeling that users are in an experience. For example, if you develop a history app, make history come alive for students. As Albert Einstein once said, "I never teach my students, I only attempt to provide the conditions in which they can learn." VR experiences should allow students to explore at their own pace. Each educational tool should provide measured impact.

Teachers should be able to track the metrics of education so they can measure the resulting knowledge of a subject. With VR, they aren't limited to word descriptions or book illustrations; they can explore the topic and see how things are put together. Creating a new role for teachers with VR education. Teacher's Role: The transition from analog teaching practices to digital ones is going to change what teaching looks like. The role of a teacher will change from content delivery to content facilitation. Teachers will be focused on creating conditions for exploring, rather than providing ready-made knowledge. Virtual reality in education is on the horizon, and without a doubt, it'll change the world as we know it. Twenty-first century classrooms will be technologically advanced places of learning, with VR technology significantly increasing students' engagement and learning. VR experiences will inspire a whole new generation of young and bright students, ready to innovate and change the world.

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# DIGITALIZATION OF TAX DISPUTE RESOLUTION: A CASE STUDY IN MONGOLIA

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**Abstract.** A company or an Institution needs to acknowledge its country's tax compliance and make accurate reports about their campaign. Hence, having a lack of knowledge about taxation is creating delusions that cause drawbacks like tax avoidance that will eventually become a dispute between the taxpayers and tax authorities. Thus, this paper focused on studying and unfolding the relationships between the pillars of decision making in the Mongolian Tax Dispute Settlement Council (MTDSC). Study used 84 tax dispute case written by the State Dispute Settlement council, which was published in 2019. The study also contains the tax legislations used in the process of decision making by the MTDSC which has been transferred to Dummy variables by our research team. Excel and SPSS 25 programs were used to better formulate this study. 84 types of enactment with 458 provision clauses were further analyzed. Result shows the number of legal acts used to submitting complaint to the Dispute settlement council has positive effect on the number of acts that are to be used by the Inspector; the length of time to be or has been monitored has no effects on the tax act results, as it shows negative effect; the number of acts used by the Inspector has positive effects on the chances of changes that can be made on taxation acts has shown on this study. One of the cases from 2019 has stated a settlement about State tax inspector's inspected amount have put off by 87% from taxation act amount (29.3billion tugrugs was declined to 4.0 billion tugrugs), which makes it a favorable settlement to the taxpayers' side. The reason behind this inconceivable declined amount was because of the "Law of Amnesty" which was created for the celebration of 25the th Anniversary Mongolian Democracy.

**Keywords:** digitalization, tax dispute resolution, industry 4.0, taxation, tax inspector

## INTRODUCTION

Taxation is where the government imposes taxes and fees to generate a revenue budget to fulfill its responsibilities and services towards the citizens and businesses. [1] The generated tax income is used in a way to allow a country to fund its investment in human capital, infrastructure, and the provision of services which resulting the taxpayers to gain its efficiency. [1]This shows that every country needs to have collateral institutes outside the Tax authorities that can do both monitoring taxation while consulting about it [2] Tax dispute means a dispute among tax administration and taxpayer concerning tax re-assessment report and ends completely on the taxpayer's complaint. [3]

Thus, in Mongolia, Tax income is funded for Educational, health, defense, judiciary institutions, government agents' salary, etc. Although Mongolia uses the Procedure for assessment, payment, and filling of Taxes, the Mongolian Tax Administration keeps thorough monitoring of its procedure implementation to inspect any reports that could contain any risk or false applications about the amount of tax they are supposed to pay. [4] If the taxpayer objects to the Re-assessment report /act/ from its State Tax inspector, then the case will be transferred to the Dispute Settlement Counsel. (legalinfo, 2019) Mongolian Dispute Settlement Council (MDSC) settles any claim within 30 days, while the Decision is informed in a fiat case. The decision is made after the three processes 1. Substantiate (Pre-Litigation); 2. Define (Litigation); 3. Constitute (Past-Litigation).[5]

To define the chances of Digitalizing current taxation system, we have used the examples of BRI countries. [6] When it comes to digitalize, many years of data and information about the taxpayer becomes an important factor. To enhance this pillar, we must provide tools like Big data, Machine learning and Artificial Intelligence to simplify the process of Tax Dispute Settlement. With this reasoning our team has re-analyzed the 84 case written by the State Dispute Settlement Council, which was published in 2019.

## AIM OF STUDY

The aim of study of this research paper is to define what influences the decisions made from the State dispute settlement council. To reach this objective, we have set these goals:

1. Describe and measure the final decisions coming from the MTDSC.
2. Find the specific factors that affects the final decisions made from the MTDSC based on recent years' cases.
3. Study the relations between those factors that affects the decisions coming from the MTDSC.

## LITERATURE REVIEW

Based on [4] study, it is accepted that the tax generated fund is used to fund the government projects. They have also proven that the tax can effectively grow the economy by using these five mechanisms: First, the tax can decrease the amount of investments through Corporate income tax, individual income tax and properties tax. Second, the tax can slow down the working class growth by letting the workers choose to have their free time after work time. [3] Third, the tax policy can influence the research fund. Fourth, the tax creates another flow of resource to lower rated departments. Lastly, imposing high tax on the labour-market causes imbalance to the cost effectiveness of human recourses while that highly imposed tax is pressuring a productive society. [7]

This paper is provided by the international researchers largest abstract and indexing database SCOPUS. On this database, we used keywords such as tax, digitalization, industry 4.0 to get wider range of keywords that helped and simplified this study.

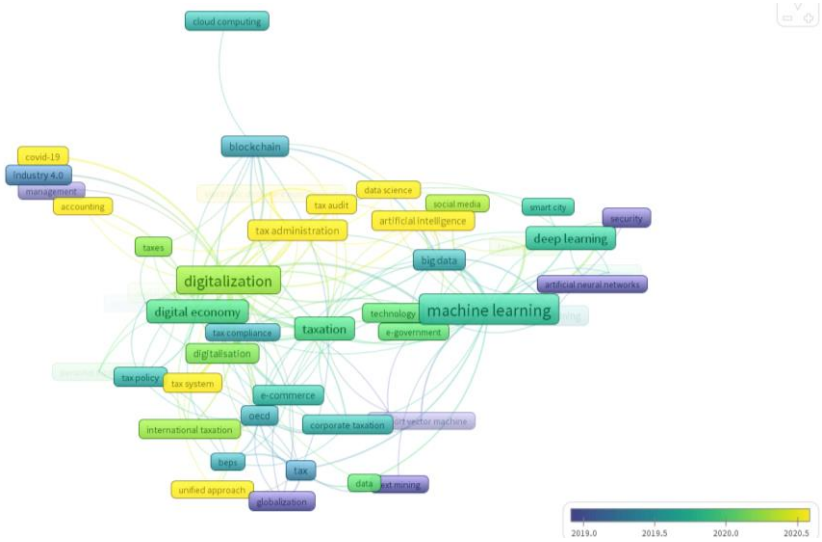


Figure 1. Overlay visualization

While analyzing the relationship and timeline between taxation, digitalization and machine learning, the studies with these three keywords were majorly related to globalization, security, data archive, blockchain etc in 2019. [8] Then later in the late 2020, the studies became more correlated to digitalization, data science, tax complience and machine learning.

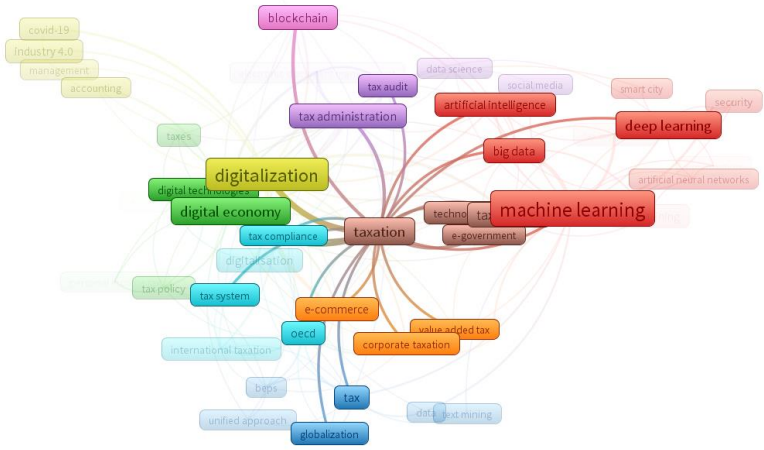


Figure 2. Network visualization

As the generated Cluster shows in the system, Digitalization and Machine learning about taxation is both an equally well studied and more focused than other subjects in this case. This can be seen through that the cluster's center is sat right in between the two keywords: Digitalization, Machine learning.

## METHODOLOGY

There are Five key pillars in Digitalization. First of all, The Digital Infrastructure should be made.


Figure 3. Key Pillars for Digital Transformation (World Bank,2019)

The Latin American countries level of digitalization index about Digital transformation was categorised in 4 parts and 20 parameters. [6]

Table 1. Britacom parameters

| | **Parameters** | |
|---|---|---|
| 1. Level of digitalization | | |
| 1 | E-invoicing | x |
| 2 | Electronic filling of tax returns | x |
| 3 | Electronic filling of TP documentation/TP returns | x |
| 4 | Electronic communication with tax authorities | x |
| 5 | Exchange in information between tax authorities /local, regional, federal/ | x |
| 2.Functionalities of software's/ tools implemented by Tax Authorities | | |
| 1 | Data collection and standardization of format | x |
| 2 | Audit trails with external data | x |
| 3 | Audit trails with internal data | x |
| 4 | Generation of outliers | |
| 5 | Electronic interaction with tax payers | x |
| 3.Data analytics | | |
| 1 | Standardization of data gathering /i.e. Xml-schema/ | x |
| 2 | Automatic generation of calculations and/or penalties | x |
| 3 | Reconciliation with historical data | x |
| 4 | Generation of outliers cross-checked with tax returns | x |
| 5 | Exchange of information regarding data analytics with taxpayers | |
| 4. Exchange of information at the international level | | |
| 1 | Country- by-country reports /MCAA/ | |
| 2 | Financial information /CRS, FATCHA/ | |
| 3 | Ruling and APAs | x |
| 4 | Mutual agreements for cooperation in tax matters | |
| 5 | Mutual agreements for criminal purposes | x |

*x-penetrated through Mongolia*

On that index the current Mongolian Tax Authorities Digitalization level can be regarded as efficiently developed.

1. The study is based on re-analyzing the Mongolian Tax Dispute Settlement Council's 84 cases which was published and solved to these four parts in 2019.
    a. Taxpayers claim – C1
    b. State Tax Inspectors claim – C1
    c. The result of Directives analyse and conclusion – C4
    d. The part where the Dispute settlement council Decides – C5

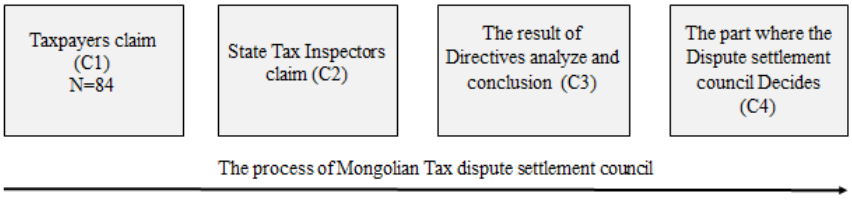


Figure 4. The process of Mongolian dispute settlement council

2. Transferred the 84 cases of tax dispute settlement that took place in 2019 to Dummy variables.

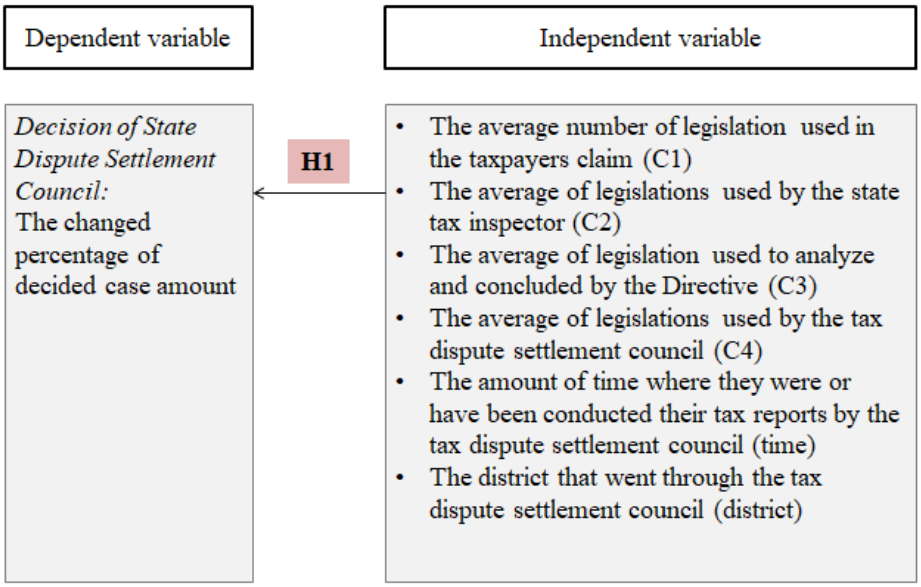


Figure 5. Definition of a variable

The legislations have been organized with it's provisions and coded to Pearson correlation, Spearman rank correlation ,which later analyzed by ANOVA, then calculated using SPSS 26 program. Analyzed the contents of 16 research papers using NVIVO12 program.

**RESULTS**

In result of participation, Chingeltei District – 24 cases, Sukhbaatar District – 23 cases, Bayn-Zurkh District – 13 cases and other district submitted 24 cases and per taxpayers which were the ones from the 84 cases back in 2019. The amount of time that these taxpayers have been letting the Tax authorities monitor their reports was up to 5-38, 4-15, 3-9, 2-12, 1-10 years. These taxpayers were from several key industries of Mongolia: 30% from Construction sector, 6% from Foreign trade, 2.4% from Tourism, 2.4% from the Mineral industry, 2.4% from The Energy sector and 56.8% comes from other industries.

Table 2. Correlation analyse

| | C1 | C2 | C3 | C4 | Time | District | Change of amount |
|---|---|---|---|---|---|---|---|
| C1 | 1 | | | | | | |
| C2 | .123 | 1 | | | | | |
| C3 | .188 | .002 | 1 | | | | |
| C4 | .340** | .068 | .237* | 1 | | | |
| Time | NA | NA | NA | NA | 1 | | |
| District | NA | NA | NA | NA | | 1 | |
| Change of amount | (.108) | (.108) | .323** | .237* | (.341)** | (.118) | 1 |

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

C1-tax players claim, C2-state tax inspectors claim, C3-the result of directives analyse and conclusion, C4-The part where the DSC decides

To summarize the table below, the number of legislations used by the directives are concluded in the independent variable, while the change of amount is concluded as the dependent variable, It is visible that higher the number of legislations are used, the bigger the change of amount is. To put this in another way, the higher the number of legislations is used, the must pay amount will go down as a change, which is showing the direct positive relation between the independent and dependent variables.

As calculated in the Rounding significant figures up to 1 percentage, The numbers of legislations used in the process of Defining (litigation) and Constituting (after-litigation) have not significant figures (0.34). Although, as calculated the C3 which is the number of acts that has been used by the Directives, in the Rounding significant figures up to 5 percentage was (0.237) not significant figure yet, It had positive relation with it.

Table 3. ANOVA analyse

| | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| C1 | Between Groups | .002 | 7 | .000 | 3.714 | .020 |
| | Within Groups | .001 | 13 | .000 | | |
| | Total | .003 | 20 | | | |
| C2 | Between Groups | .031 | 7 | .004 | 2.230 | .101 |
| | Within Groups | .026 | 13 | .002 | | |
| | Total | .057 | 20 | | | |
| C3 | Between Groups | .022 | 7 | .003 | 3.372 | .028 |
| | Within Groups | .012 | 13 | .001 | | |
| | Total | .034 | 20 | | | |
| C4 | Between Groups | .021 | 7 | .003 | 1.018 | .463 |
| | Within Groups | .038 | 13 | .003 | | |
| | Total | .059 | 20 | | | |
| Change_amount | Between Groups | .037 | 1 | .037 | 9.718 | .003 |
| | Within Groups | .308 | 82 | .004 | | |
| | Total | .345 | 83 | | | |
| Time | Between Groups | 2.148 | 1 | 2.148 | .984 | .324 |
| | Within Groups | 178.995 | 82 | 2.183 | | |
| | Total | 181.143 | 83 | | | |

To support the economic transparency in Mongolia, a new law was made in the 1st of January, 2015. This new law about economic transparency has guided taxpayers to expose and re-report their hidden assets and incomes which led to a significant movement that took place in 2019. In 2019, 84 tax dispute cases were settled through the State tax dispute settlement council.

Table 4. One - Sample test

| | Test Value = 0 | | | | | |
|---|---|---|---|---|---|---|
| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
| | | | | | Lower | Upper |
| C1 | 10.548 | 84 | .000 | .06000 | .0487 | .0713 |
| C2 | 12.885 | 84 | .000 | .06834 | .0578 | .0789 |
| C3 | 13.027 | 84 | .000 | .07679 | .0651 | .0885 |
| C4 | 16.250 | 83 | .000 | .11429 | .1003 | .1283 |

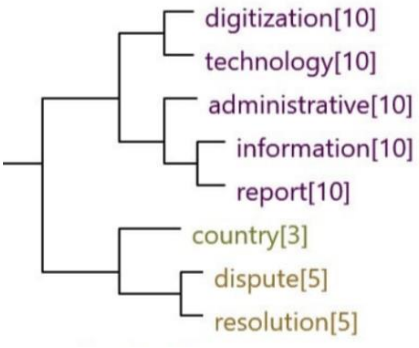


Figure 6. Word cluster

The results of content analysis in 16 research articles published in international journals using NVIVO 12 are as follows, consistent with the results of bibliometric analysis performed on VOSviewer.


**SUMMARY**

In this study there were no specific mentions of acts and provisions during our scope of research. Here are the conclusions after researching and analyzing the Mongolian Tax Dispute Settlement Council.

The number of legislations used to write a claim to the Dispute settlement council has positive effects on the number of legislation used by the Directive.

The number of legislations used by the Directive has positive influence to lower the settlement amount/ the directive using a numerous acts and legislation can lower the amount of violation charges that was put to pay.

As a conclusion based on the frequent recurring violation cases, it is proven that the consequences of misusing the legislations about the General Law of Taxation and Value Added Tax (VAT) Law were causing numerous disputes. To prevent this type of disputes, this paper recommends the tax departments to provide and promote knowledge about the right usage of such tax laws to truly embody the laws.

For further implication, this paper's contents can be used as a reference for further implications, such as organizing the 84 dispute cases to PIT, CIT, Property tax, VAT; selecting the 84 tax dispute case's past or further timelines (after or before 2019) to compare and analyze or create wider ranged timeline statistic data; or the tax dispute cases can be selected from an entirely different timelines with different selected cases.

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# CIRCUMSTANCES OF ROAD SIGNS ALONG ROADS IN TOURISM INDUSTRY

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**Abstract.** The branch of transportation and roads have rapidly been developed, the roads plunging to the regions of tourism are of local character, though. Thus drivers and tourists can face problems to lose their directions and be lost. In regions, which are developed tourism has not enough signs and guide marks and road directions. It will be more beneficial if the roads and road and direction marks in the region are built based on the local resources and features of nature and culture. There are some possibilities to save fuel, time and money by protecting tourists from being lost and increase the status of Mongolia and will create advantages in the field of tourism as well. The purpose of this paper is to define some ways of improvement based on study of nowadays situation of signs and guide marks for auto roads in Mongolia.

**Keywords:** Road transport, road, road sign, guide marks, tourism

## INTRODUCTION

Mongolian domestic and foreign relations were developed by establishing a horse relay station in 1230 with the fiat of the king Ugodei. This was the foundation of development of road connections in Mongolia which was between the Soviet Union and Mongolia. The tourism business is integrated with the complex activities of many subsidiaries. Moreover road development is the basic problem of a highly profitable field of tourism with economical concern.

## TODAY'S CIRCUMSTANCES OF ROAD SIGNS IN MONGOLIA

A. *Development of road signs in Mongolia.*

Since 1940 Mongolia has been using road signs and guide marks officially confirming them. The first patterns of road signs and reference were determined with the 1st supplement of the third updated traffic rules "Traffic rules in a city of Mongolia"approved in the 38th session of members of the Committee of People's Ministries on 4th October 1940. The first traffic signs were classified into three groups as "Preventing", "Prohibiting", "Directing".

**Preventing signs:** four triangle signs of "Intersection", "Signs to turn left, right", "Railroad pass", "Hazardous".

**Prohibiting signs:** Eight round signs as "No vehicles, conveyance allowed!", "No steam engine allowed!", "No oxcart or horse cart allowed!", "No cycling!", "No long stop!", "No stop!", "Limited speed!", "Allowed direction!".

**Directing signs:** two rectangular signs "Be aware", "Stop". There were 14 signs.

Our country first had road signs, guide marks, and technical standards of traffic lights by approving "Traffic lights and main indexes" and MNS 4980:2000 standards with the 119th resolution on 27th June 2000. [3]

Figures 1. gives information on road lengths and signs along the roads from Ulaanbaatar to provinces and other cities.

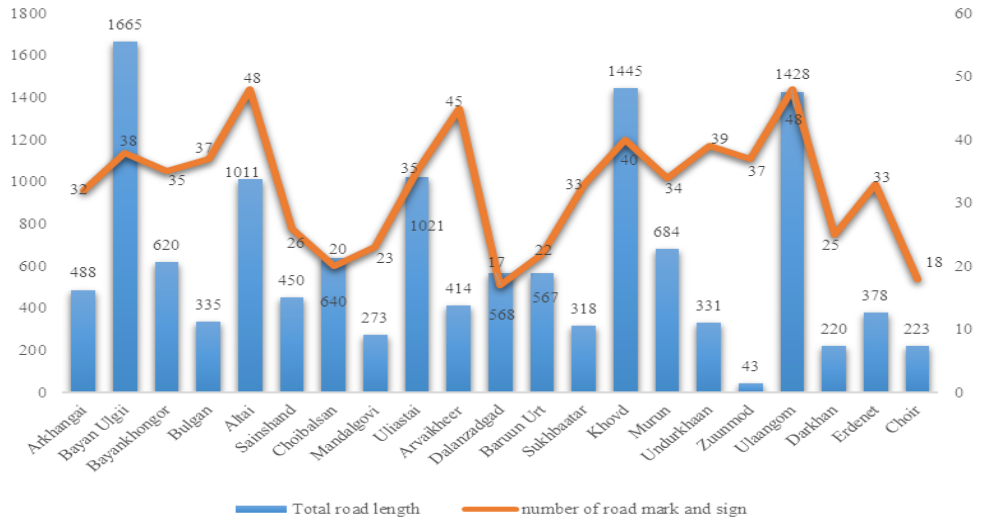


Figure 1. Road signs and guide marks

The 19.4% of roads used in Mongolia are hard sealed roads with a length of 11219 kilometers [13] along which there are 479 preventing, prohibiting, informative road signs. For example:


Figure 2. Signs and guide marks used in Mongolia [5]

These road signs are informative signs for traffic in Mongolia and used on roads of cities, towns and local areas as well. Although auto road signs and guide marks in urban areas are more consistent with the required standard, those in the rural areas with reclaimed earth road and ordinary ground roads do not meet the standard due to weak development and infrastructure of the local area. Improving this condition will contribute to development of the local area and passer by will not lose their ways as well.

*B. Experiences of international road signs and guide marks for tourism*

Guide marks for tourism used internationally were penetrated in the mid 1970s in France. Then there was a need to have one consolidated standard to bring tourists to their destination. Guide marks of one consolidated standard for tourists first were used in Germany in 1984. Road signs and guide marks used internationally are presented on a brown background with white icons, white words or letters, but the size is designed corresponding to the standard of road signs and guide marks of the country where they are used. Road signs and guide marks are classified into three main groups.

- Informative signs – road signs showing tourist destination
- Standardized signs and guide marks – special guide marks
- Guide marks for tourists – signs showing the distances between the places sited along the road and their locations [4]


Figure 3. Signs and guide marks used internationally for tourism

There are many signs for tourism and guide marks for tourists, and special marks and they are comprehensive to tourists and travelers from any countries, and ordinary citizens.

Road signs and guide marks for tourists set along roads also show the location of cities, towns and local areas and cross roads and give useful information for tourists. For instance, the signs and guide marks set along the road from Ulan-Ude, a city of Russian Federation, to the Lake of Baikal are very informative and can give all the information required by tourists. In the case of being lost or stumbling, such good signs or guide marks can give the following information: the right directions leading to the destination, where and what is located, if there's an internet connection or not, where a gas station is, where autoservice is. All these signs and guide marks are located 100-150 meters away from the object with the consistency of the standard.

The road signs and guide marks for tourists used in Mongolia are in a poor condition. Moreover they lack information giving directions. Today it is required to improve and update road signs and guide marks meeting today's demand of society, increase the number of road signs and guide marks following the standard set along the roads of national use or character. In addition to this, the signs set along the roads in local areas must be done with the resources of the provinces.

## RESEARCH ON THE NEED AND REQUIREMENT OF ROAD SIGNS AND GUIDE MARKS IN TOURISM

Tourism industry is smokeless production and it can serve as a ground branch of the economy for the country. It follows as:

- Increase opportunities and resources spent on saving and protecting natural resources and cultural heritages;
- Contribute to improving people's salaries and life conditions;
- Create new workplaces;
- Open many opportunities for economic development and others;
- Improve tax foundation;
- Improve infrastructure and equipment;
- Develop handcrafts in local areas and increase life conditions of handicrafts men;

Tourism industry consists of complex actions of services of many branches. One of the branches that play the biggest role in the tourism industry is service of transportation. Thus at this time of development of auto road and transport, Mongolia has to penetrate road signs and guide marks along roads of tourism that are economically beneficial. For this reason there has been a survey conducted among 36 guides, 75 drivers and 200 people who frequently go to local areas questioning if there were any occasions to be lost, if they know the road, if the road signs and guide marks can give enough information they need.

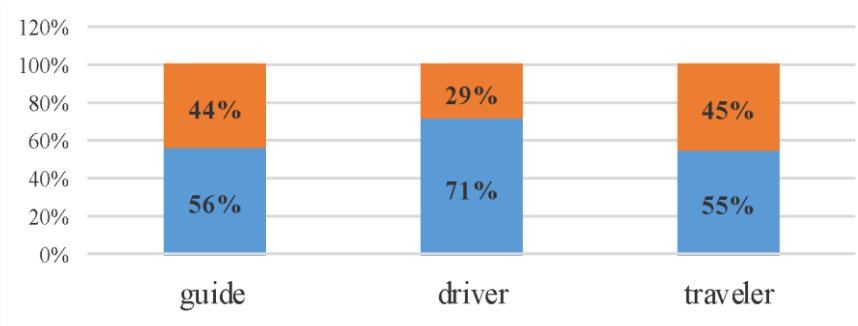


*Figure 4. Have you ever been lost during a trip?*

The survey result shows 56% of tour guides, 71% of drivers who are 20-51 years old, 55% of the people have been lost during their journey. But 44% of the tour guides, 29% of drivers who are up to 52 years, and 45% of the people answered that they have never been lost.

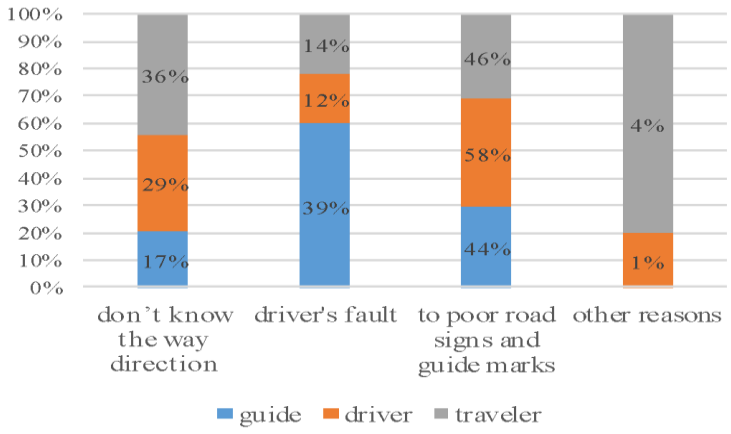


*Figure 5. Reasons of being lost during trip*

While the tour guides who are 20-27 years old explained the reason of being lost was due to driver's fault, 28-35 years old guides considered that it was due to poor road signs and guide marks, 36-43 years old guides saw it as the driver's fault – not knowing the direction very well. 20-27 years old guides are inexperienced, so they are usually lost. Comparing the reasons of being lost during trips, 53% of drivers of all ages considered it because of poor road signs and guide marks, while the drivers of 36-43 years old can be lost because of not knowing the directions very well.

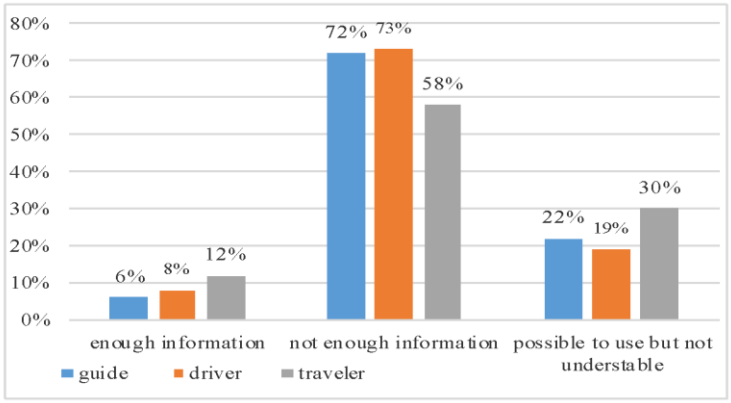


*Figure 6. Can the road signs and guide marks used in Mongolia give enough information you need?*

Judging from this it can be concluded that if drivers don't know their ways they can be lost even if road signs and guide marks are good enough. The biggest reason for being lost is not knowing the way to the destination. 20-27-year-old drivers are usually lost because they don't know the directions or ways, while 28-35-year-olds can be lost because of poor road signs and guide marks. The drivers who can be lost because of not knowing the directions or ways are young and inexperienced. 46% of individual campers can be lost due to poor road signs and guide marks, 36% of them because of that they don't know the ways, 14% - because of their own fault, the remaining 4 % answered they can be lost due to other reasons. All these results show road signs and guide marks are in poor conditions everywhere in Mongolia.

72% of tour guides, 73% of drivers, 58% of people who participated in the survey saw that road signs and guide marks used in Mongolia cannot give enough information. 22% of the tour guides, 19% of drivers, 30% of the people evaluated the road signs and guide marks as conceivable, but some of them are incomprehensive. Generally being lost is caused by absence of road signs and guide marks or their poor conditions. 39% of tour guides, 28% of drivers, 44% of drivers consider that there's a need to improve road signs and guide marks for tourists, 22% of tour guides, 40% of drivers saw that to add the number of road signs and guide marks and standardize them.

39% of tour guides, 32% of drivers, 33% of the people suppose that all these improvements must be done using the resources of the local areas considering the features of nature and environment.

The survey result shows that 60% of the people saw the reason for being lost is caused by the poor conditions of road signs and guide marks and knowledge about the directions. Thus all road signs and guide marks set along roads in Mongolia must be improved and restored. Improving and penetrating the road signs and guide marks set along the road in local areas play the biggest role in the infrastructure of the local areas and help the passer by not to be lost.

## PENETRATING ROAD SIGNS AND GUIDE MARKS IN THE FIELD OF AUTO ROAD OF TOURISM IN MONGOLIA

It is difficult to get an orientation in Mongolian gobi and steppe and there's lack of road signs and guide marks or bluntness to comprehend, and many road crossings. All these can lead to be lost or accidents. Improving and penetrating road signs and guide marks along the road of tourism can decrease. Moreover it brings many advantages in tourism. 20% of the accidents occurring on auto roads are caused by road signs and guide marks. It is required to penetrate road signs and guide marks in three main tendencies.

- Locate improved road signs and guide marks along the hard roads of state and international character and the road signs must be of international use. Restore and improve them with the consistent of Mongolian standard and use road signs of international tourism in a brown background with white images or letters.
- Add road signs and guide marks along the ordinary earth roads or roads in local areas following the standard.
- Improve guide marks for road crossings in local areas. It should be done by the local entities or people considering the features of nature and using the resources of the local area such as stone, wood, leather, etc.

Road signs and guide marks must be set in many places in Mongolia. Table 1 shows some tour routes as an example.

The road signs and guide marks along roads in local areas should be improved with the finance of the local entities and assistance of the local people. It's advantageous to make road signs and guide marks using natural material like wood, stone and leather because of their low cost and they can match the natural and geological features of the local area.

Table 1. Proposals to locate road signs and guide marks for tourism

| Destination | Sightseeing | Signs to be done |
|---|---|---|
| Tsagaan Chuluut → Onkh mountain→ Tsagaan Suvarga→ Cave of Khevtee and Bosoo→ Tsogt Ovoo soum→ Yoliin Am /300km/ | Tsagaan Suvarga<br>Cave of Khevtee and Bosoo<br>City of Dalanzadgad | Signs showing location and direction |
| Yoliin Am → Canyon of Dungenee→ Bayandalai soum Khongoriin els /230km/ | Mount of bearded vulture<br>Khongor Sand<br>Khongor River | Signs showing location and direction |
| Khongoriin els→ Khoolt bag→ Khavtsgait→ Bayan zag /185km/ | Zuulongiin Nuruu<br>Bayan zag<br>Treasure of dinosaurs | Signs showing location and directions |
| Ongi Monastery → Arvaikheer → Uurtiin tokhoi /316 км/ | Ruin of Ongi Monastery<br>Ongi River<br>City of Arvaikheer<br>Mountain range of Khangai<br>Uurtiin tokhoi | Signs showing location and directions |
| Uurtiin tokhoi → Sightseeing of Temeen chuluu mouth→ Ulaan Tsutgalan→ Tuvkhon Monastery→ Orkhon River /205km/ | Sightseeing of Temeen chuluu<br>Ulaan Tsutgalan (Red Waterfall)<br>Tuvkhon Monastery | Signs showing location, direction, and places to overnight |

Road signs and guide marks in local areas should be made with the same standard and developed matching the Mongolian national tradition, culture, custom, and the natural beauty as well. Moreover these signs should be interesting, economically inexpensive, using the local area's resources. The road signs and guide marks follow as:

1. Leather signs and guide marks
2. Signs and guide marks made of wood
3. Signs and guide marks drawn on stones

Table 2. Proposals to be set along the roads in local areas

| Standard for signs and guide marks made of leather | Standard for signs and guide marks made of wood |
|---|---|
| − Height of pole: 3m<br>− Distance between poles: 70 cm<br>− Set the pole digging 50cm deep<br>− Locate the signs 80cm above the ground<br>− Font of the letters: height 8 cm, width 8 cm | Length of a wooden pole: 2.5m<br>Pole must be set digging 50cm<br>Locate the signs within 1 meter<br>Width of a board: 80cm<br>Height of the board: 90cm<br>Length of a wooden arrow: 50cm<br>Width of the wooden arrow: 20cm<br>Font of the letters: height 8 cm, width 4 cm |

Road signs and guide marks along roads in local areas are frequently becoming colorless and broken. The main reasons for this is that they are far from the town or cities and people's care and attention, placed under direct impact of rain, snow, dirt, rubbed or scratched by animals. In this way those signs and guide marks cannot be long lasting. Thus to set road signs and guide marks along ordinary or improved earth roads there's a need to use local resources and match the natural features.

## CONCLUSION

The need or demand of signs and guide marks along the auto road is increasing more and more year by year in tourism of Mongolia. The number of foreign, domestic and individual tourists increases last year as well. Based on the study, it's clear that tourists lose their way because of many road crossings and there are not enough road signs and guide marks set along roads. The urgent issue that requires the right solution is to investigate the problems and find the right ways. Although Mongolian Auto road Inspection and Research Center is responsible for studying roads and road signs and guide marks, it doesn't have any materials studying along auto road signs and guide marks for the purpose of tourism. In the future it will be more beneficial to increase the number of road signs and guide marks with the consistency of the standard in Mongolia. Improving and penetrating road signs and guide marks along roads help decrease the number of occasions of being lost, save time and money. The some ways to increase number of road signs and guide marks set along roads:

- To budget money spent on increasing the number of road signs and guide marks along the road of international and state character in the country's finances.
- To budget money spent on increasing the number of road signs and guide marks along the road in local areas.
- To create road signs and guide marks along the road or ordinary earth road in local areas using the local resources and matching the natural environment, and collaborating with the local people and entities that use the road. Within the framework of this kind of work there will be increased profits gained from tourism and bring a lot of significance in the development of tourism of Mongolian auto road and infrastructure.

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# A STUDY ON FACTORS AFFECTING TAX COMPLIANCE BEHAVIOR

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**Abstract.** According to the General Department of Taxation, as of 2021, 35 per cent of the total of 220,000 registered businesses in Mongolia don't comply with corporate income taxes. This number has resulted in a huge accumulated amount of tax liabilities, which is 3.2 trillion tugriks. According to researchers, there is a limited number of studies on defining reasons for non-compliance in Mongolian taxpayers. Therefore, a thorough study on reasons aka factors influencing compliance behaviour is viable nowadays. Researchers proposed factors that might define a positive compliance behaviour such as tax simplicity, peer influence, tax agent, and tax penalties. In this study based on the Theory of Planned Behaviour and the Theory of Reasoned Action, we identify factors that would explain the tax compliance of Mongolian taxpayers. In this study, we use a quantitative survey method in an attempt to determine corporate tax compliance factors. Tax agents, tax compliance, peer influence, and the simplicity of tax reporting were confirmed to have a direct impact on tax compliance behaviour and intention to comply mediates tax inspection, tax penalties and tax report simplicity effects. Tax compliance behaviour differs by the size of companies.

**Keywords:** tax agent, planned behaviour, tax knowledge, peer influence, tax penalty, the taxpayer

## INTRODUCTION

Mongolian historical sources clearly state that “there is a tax under the state, and there is a state under the tax”. Until 1990, Mongolia did not have an independent tax legal system. Due to resolution of the Article 17.1.3, the Constitution of Mongolia stipulated that “payment of taxes” is the main duty of a citizen. There are four main responsibilities of a taxpayer. These include 1) Registering as a taxpayer, 2) Applying the tax correctly, 3) Filing tax returns according to the approved form, and 4) Paying the tax on time. The State Great Hural (Parliament) passed a package of tax laws in 1992 that introduced new types of taxes, and taxpayers moved to a new system of "self-assessment and payment of taxes, defined by the law." By paying taxes, taxpayers and legal entities participate in raising the financial resources needed to perform government functions, and as a result, receive social services financed by tax revenues. Taxes serve the following three purposes[2].

1. Raising Budget Sources - Taxes are the main sources of funding for government functions, as they make up the majority of the budget revenues.

2. Regulation - Tax policies and rates support and restrict citizens and business entities by incentives, discounts, and exemptions.

3. Redistribution - Tax revenue is collected and redistributed to carry out government functions.

Non-compliance with the tax law has been a major concern for the government. In 2002-2003, 94-95 percent of the 21800 companies submitted their tax reports. However, since 2010 this number decreased drastically and in 2019 reached 65 percent. Therefore, there is a need to study the intention to comply with the corporate income tax law and the factors influencing it.

## LITERATURE REVIEW

Due to differences in tax reporting requirements and legislation, there is no universally accepted definition of tax law compliance, and scholars have defined it differently depending on the purpose of the study. Researchers have been studying tax law compliance since the 1970s. For example, Roth et al. (1989)[1] argue that a situation, in which a taxpayer is required to file all tax returns promptly and accurately, and report tax liabilities by the rules, regulations, and court decisions that apply when declaring income. James and Alley (2000)[2] described compliance with the tax law as a “continuous process” that focuses on taxpayer behaviour from a narrow approach that focuses primarily on tax differences. Bidin (2011) also argues that compliance with the tax means that all taxes are paid in full[3], while Alm (1991), Jackson, and Milliron (1986) define compliance with tax laws, regulations, and court decisions as reporting compliance and paying taxes[4]. Roth (1989), Alm (1991), Jackson and Milliron (1986), Kirchler (2007)), James and Alley (2000), Franzoni (2000), Chatopadhyay, DasGupta (2002), Palil (2010) Bidin et al (2011), “Compliance with tax legislation is a desire of a taxpayer to properly declare his income, impose exemptions and tax credit, and pay all taxes on time”. On the other hand, another expression of compliance with the tax law is that taxpayers must file tax returns, declare their taxable income accurately, and pay all taxes on time, without the need for the tax authorities to take any enforcement action.

In general, compliance means acting by the law, and non-compliance means acting illegally[5]. Compliance with tax law is classified as voluntary or compulsory[6]. Voluntary compliance is the willingness of a taxpayer to comply with tax laws voluntarily as a result of trust and cooperation between the tax administration and the taxpayer. On the other hand, enforcement means that due to mistrust and lack of cooperation between the tax administration and the taxpayer, the taxpayer does not comply with the tax legislation, and the tax administration enforces the tax legislation through inspections and sanctions. In particular, coercive enforcement means that the authorities use state coercion to collect taxes from the taxpayer, while voluntary means that the taxpayer is free to pay the

[2] *https://mof.gov.mn/article/entry/citznbudget*

tax at will without the use of state pressure[7]. If the taxpayer's tax ethics are high, there is no tendency to avoid taxes, even if there are certainly economic benefits[8].

There are two main approaches to study tax law compliance: economic and behavioural. From an economic point of view, compliance with tax laws is studied and is based on economic theory. In economic terms, the first study of tax law compliance was conducted in 1972 by Allingham and Sandmo. The Allingham-Sandmo model assumes that taxpayers report their income after considering the tax rate, the likelihood of violations, and the number of fines[9]. In other words, it has been proven that taxable income is directly related to the likelihood of violations, and the number of fines, and inversely to the tax rate. Based on an economic theory approach, taxpayers make the optimal decision to maximize their expected after-tax returns and assume that compliance with tax law depends on economic benefits or costs[10]. On the other hand, this approach assumes that taxpayers make informed choices based on risk or security before committing a violation[11]. Although the first studies based on economic theory provided a basis for understanding tax law enforcement behaviour, they were criticized for failing to include psychological and sociological factors that contained "internal motivations" for taxpayers to comply with tax laws without coercion[12].[13] Behavioural approaches, on the other hand, study tax law compliance based on social and psychological theories[14]. Theories most commonly used to predict behaviour are the Theory of Reasoned Action (TRA) and the Theory of Planned Behavior (TPB)[15]. The Theory of Reasoned Action (TRA) is a theory of social psychology[16] proposed by Ajzen and Fishbein (1980) that seeks to explain human behaviour, In this theory, people are more likely to perform a behaviour if they conclude that the proposed behaviour is a positive outcome (attitude). The model consists of attitudes and subjective norms. Behaviour refers to whether a person perceives the consequences of behaviour as positive or negative. Subjective norms, on the other hand, are the general social pressure to perform or not to perform. This theory has the advantage of expressing a person's attitudes and norms of social situations, but it also implies that behavioural motivations do not always lead a person to perform a particular behaviour.

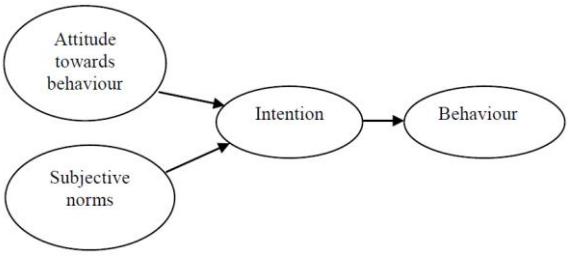


Figure 1. A model of the Theory of Reasoned Action

The Theory of Planned Behaviour (TPB) extends the Theory of Reasoned Action (TRA) with a component known as behavioural control, which has been shown to improve the predictability of emerging theories and Theory of Reasoned Action[17]. Initial Theory of Reasoned Action (TRA) assumes that human attitudes and subjective norms only affect the motivation to perform a behaviour, but adding a new component, "perceived behavioural control," to control a person's motivation to perform a behaviour with confidence. Perceived behavioural control is defined by control beliefs. In other words, the Theory of Planned Behaviour assumes that a person's behaviour is determined not only by ones desires[10], but also by his or her ability to control the person's behaviour.

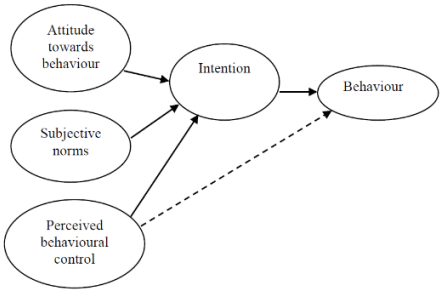


Figure 2. A model of the Theory of Planned Behaviour

The above theoretical approaches have played an important role in determining the factors that define tax law compliance[18]. These theories of economics, social sciences, and psychology have contributed to the analysis of tax law compliance behaviour and the identification and classification of factors that influence it. For example, Jackson & Milliron (1986) conducted 43 studies of tax law compliance between 1970 and 1985 and defined 14 factors that contributed to it. These factors include age, gender, education, income level, source of income, profession, integrity, the influence of others, tax complexity, probability of detection, fines, tax rates, tax administration feedback, and tax ethics[19]. Richardson & Sawyer (2001) continued Jackson & Milliron's (1986) comprehensive study of tax law compliance between 1986 and 1997, adding four factors: tax agent, cost of compliance, framing of tax decisions, and a tax amnesty[19]. Studies by Kirchler (2007), Loo (2006), and Palil (2010) divide taxpayers' compliance with tax law into five main categories[20] [21] [22]. These include:

1) Economic factors (tax rates, tax controls, budget spending projections)

2) Institutional factors (role of the tax authority, simplicity of tax reporting and management, probability of detection)

3) Social factors (ethics, attitudes, perceptions of equality and fairness, political affiliation and current public policy changes)

4) Personal factors (perception of personal financial constraints, tax violations, fines)

5) Other factors (age, income, level, culture, education, gender).

According to the results of the theory and research on tax law compliance, one of the main activities of the organization is compliance with the tax law. However, it is important that policy guidelines for this are aimed at improving compliance.

**METHODOLOGY**

The purpose of this study was to determine compliance behaviour with the Mongolian Corporate Income Tax Law. We propose a conceptual model based on the Theory of Reasoned Action and Theory of Planned Behaviour.

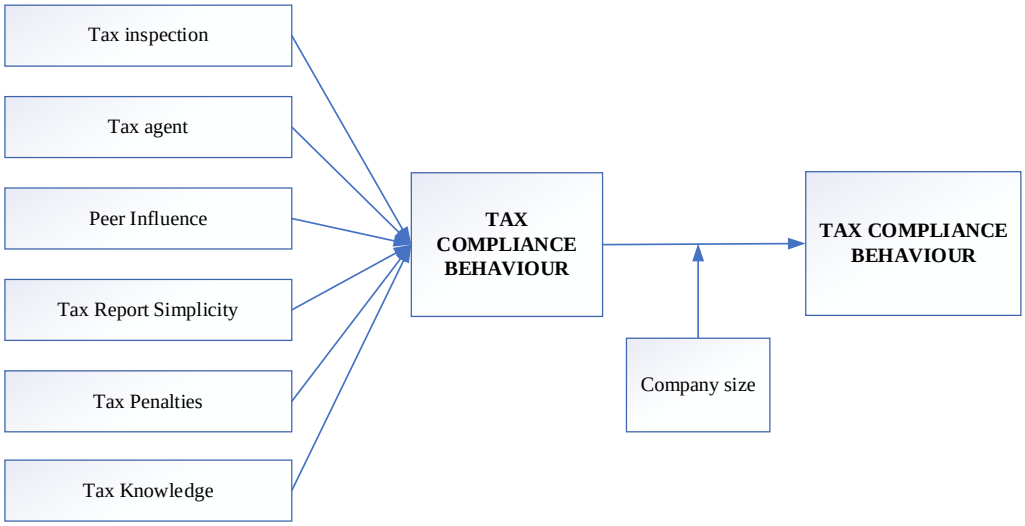


Figure 3. Conceptual model

Based on this conceptual model, we propose the following hypotheses.

*H1: Some factors in the tax system affect the intention to comply with tax laws.*

*H2: Certain social factors affect a company's ability to comply with tax laws.*

*H3: Tax knowledge has a positive effect on an entity's compliance with tax laws.*

*H4: Compliance with corporate tax laws varies depending on demographics.*

*H5: Intention to comply with tax law is a prerequisite of compliance behaviour.*

***Research tools:*** The survey consisted of 6 groups of 49 questions using a 5-dimensional Likert template from forms.google.com and surveyed a total of 230 corporate directors, accountants, and tax professionals. A Kaiser-Meyer-Olkin (KMO) value greater than 0.6 indicates that the sample adequately represents the population[23]. MS-Excel and IBM SPSS Statistics25 were used to process the survey results. Cronbach's alpha coefficient was used to test the reliability of the representativeness of the survey questionnaire. The coefficient is a measure of the internal stability/reliability of the questionnaire and examines the relationship between the group and the set. The Cronbach's alpha coefficient is not a statistical test, but only a coefficient of reliability. Reliability refers to the assessment of the compatibility between the measurement variables of many subsections or the internal compatibility of measurement. Internal compatibility is acceptable if Cronbach's alpha value is at least 0.7. The results of the study were processed using Andrew F. Hayes' Process procedure regression analysis to estimate the effects of mediating and moderating variables.

## RESEARCH RESULTS

***General information of the survey participants:*** A total of 230 representatives of business entities participated in the study. 85.7% of survey respondents are accountants, 7.4% are CEOs, and 6.9% are tax consultants and responsible specialists. 14.8% of enterprises are engaged in manufacturing, 27.4% in services, and 57.8% in trade and other activities. According to the relevant tax department, 51.3% belong to the district and 13% to the capital city tax office. Of the 50 local enterprises participating, 72% belong to the aimag tax office and 28% to the soum.

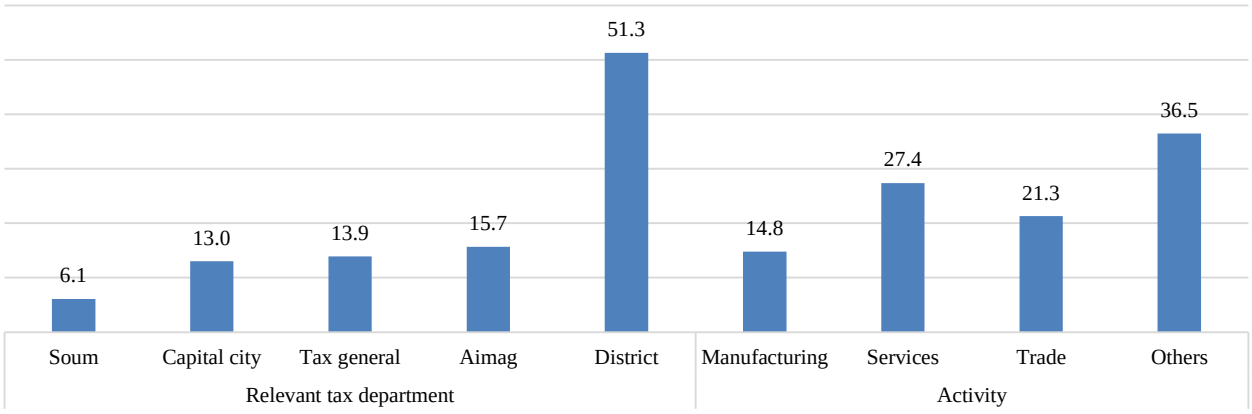


Figure 4. Respondents' relevant tax department and activity, %

50.4% of the surveyed enterprises have up to 20 employees, 25.7% have 20-49 employees and 23.9% have more than 50 employees. According to the survey participants, average sales revenue was 24.3% for micro-enterprises with an income of less than 50 million MNT, 34.8% for small or income of 51-1500 million MNT, 19.1% for an income of 1.5-20 billion MNT, and 21.7% for more than 20 billion MNT. %.

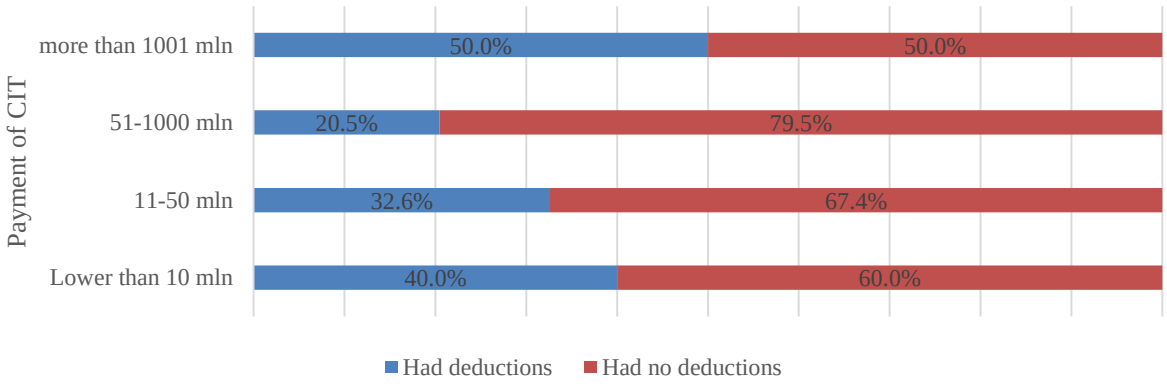


Figure 5. CIT payment and tax credit

***Results of the factor analysis test:*** In the factor test, the Eigenvalue is calculated to be greater than 1 and the absolute value of the variable is greater than 0.6. The KMO (Kaiser-Meyer-Olkin) index is 0.816, indicating that the sample size is sufficient. According to the results of the analysis, Cronbach's alpha showed a reasonable level (compliance with CIT law -0.775, tax knowledge - 0.715, tax advisory services -0.841, the peer influence - 0.6, fines - 0.833, tax inspections - 0.863). The internal compatibility between the reported and the variables are recognized. Therefore, it is possible to evaluate and analyze the model using the results of the survey in the future (Table 1).

Table 1. Matrix of component analysis

| | Component | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| The behavior of tax inspectors during tax audits helps to ensure that taxes are paid accurately | .825 | | | | | | | |
| Tax inspections will help us improve our company's tax compliance in the future | .766 | | | | | | | |
| Tax inspections have improved the level of implementation of the tax laws to our company | .759 | | | | | | | |
| The inspection report of the state tax inspector is accurate | .757 | | | | | | | |
| Taxpayers are satisfied with tax audits | .724 | | | | | | | |
| Tax audits help our company to make the necessary improvements to its records | .708 | | | | | | | |
| The preparation time of primary financial and accounting documents for tax audits was appropriate | .663 | | | | | | | |
| It is more economical to outsource tax advisory services | | .772 | | | | | | |
| A tax advisor participates in tax audits and **protects** tax reports | | .771 | | | | | | |
| Without the involvement of a tax advisor in the tax audit, our company would be in a very difficult situation | | .730 | | | | | | |
| Changes and updates in tax legislation are easily available from tax advisory services | | .692 | | | | | | |
| I prepare my tax returns correctly because if I don't follow the rules, I'm more likely to get caught | | | .796 | | | | | |
| Penalties for tax evasion are very severe, so taxes are paid according to the rules | | | .790 | | | | | |
| Due to a large amount of tax fines, taxes are paid accurately | | | .735 | | | | | |
| We know the penalties and risks of tax evasion in Mongolia | | | .704 | | | | | |
| It is appropriate for large enterprises to have higher reporting costs than for small and medium enterprises | | | | .789 | | | | |
| It is recommended that the number of tax audits of large enterprises is higher than that of small and medium enterprises | | | | .781 | | | | |
| It is fair for a profitable business to pay more taxes than a less profitable business | | | | .764 | | | | |
| Large enterprises pay more taxes than small and medium enterprises because of the high solvency of large CITs is fair. | | | | .713 | | | | |
| If a competing entity is evading taxes, we can also evade taxes | | | | | .887 | | | |
| We decide whether to pay taxes based on the experience or suggestions of other companies | | | | | .877 | | | |
| In Mongolia, social wealth is distributed fairly for the benefit of its citizens | | | | | .643 | | | |
| The report is made accurately because If the report is not filed in accordance with the CIT law, the tax office is more likely to detect it. | | | | | | .870 | | |
| CIT reports are prepared accurately otherwise they can damage a company's / organization's reputation | | | | | | .852 | | |
| The CIT law is easy to understand | | | | | | | .850 | |
| CIT report is easy to report | | | | | | | .848 | |
| Tax penalties are calculated from the date of the tax is due until the end of the tax year | | | | | | | | .740 |
| The amount of penalty to be applied in a tax year shall be determined by the government | | | | | | | | .733 |
| If the owner, possessor, or user transfers to the ownership, possession, or uses to others, he/she shall register with the CSI within 14 days. | | | | | | | | .638 |

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 7 iterations.

Principal component analysis results revealed 8 groups of factors. These are tax audits, tax advisory services, fines, tax law compliance, peer influence, tax law compliance behaviour, simplicity of tax reporting, and tax knowledge. Therefore, if we examine the conceptual model in the study, tax advisory services (.195), tax law compliance (.272), the influence of others (.157), and simplicity of tax reporting (.228) are directly related to tax law compliance behaviour. This supports the H2 hypothesis.

A multi-factor mathematical model of tax compliance

$$TK = 0.181 + 0.195 * TA + 0.272 * BI + 0.157 * PI + 0.228 * TRS \quad (1)$$

*Where: TK- Tax Compliance Behaviour, TA-Tax Agent, BI-Intention to Comply with Tax, TRS—Tax Report Simplicity*

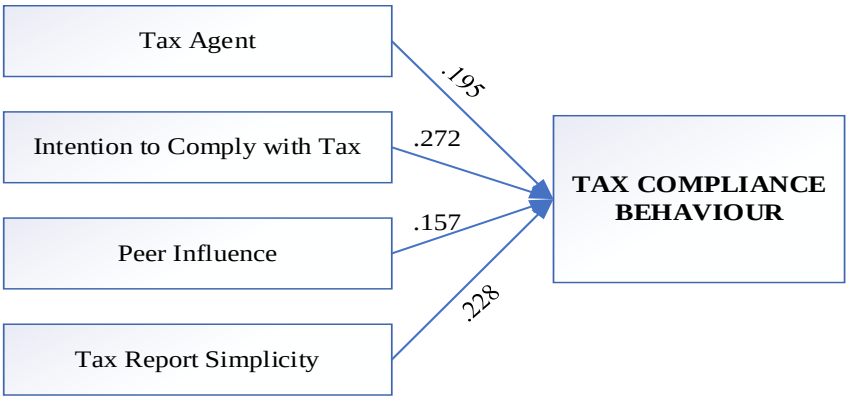


Figure 6. Model 1- Factors affecting on Tax compliance behaviour

A detailed study of the most influential tax law compliance trends found that three variables, tax audits, penalties, and simplicity of tax reporting, conveyed the impact on tax compliance. In particular, tax audits (.2009, .2638), penalties (.4024, .2750), and simplicity of tax reporting (.2279, .2365) influence tax compliance through a tendency to comply with tax laws. Our hypotheses H1 and H5 are supported.

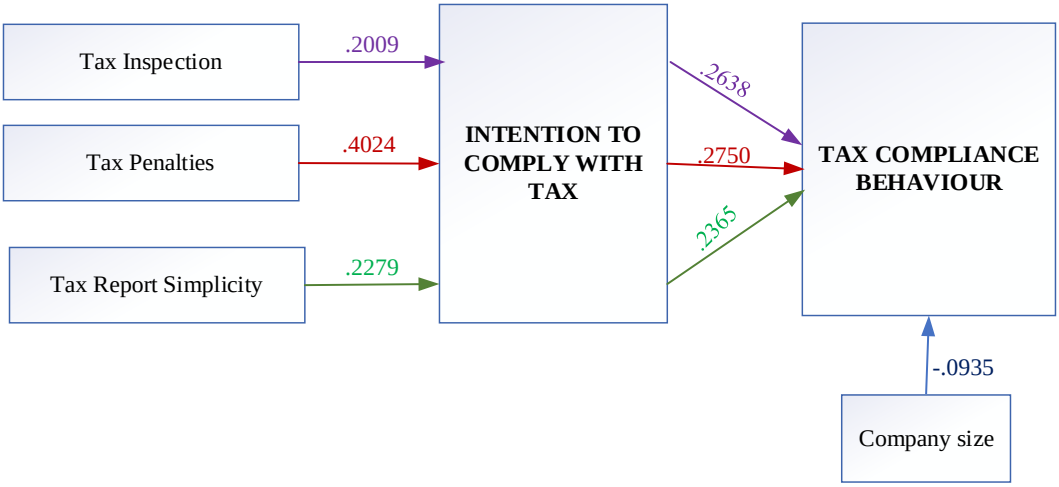


Figure 7. Model 2 - Mediation effect of the Intention to Comply with Tax and moderation effect of company size

However, considering whether the compliance with the tax law depends on the size of the organization, the coefficient of interference is -0935, which means that the size of the organization may avoid compliance with the tax law. Here, hypothesis H4 is supported.

## CONCLUSION

In Mongolia, around 94-95 percent of the 21800 companies that were required to submit their reports in 2002-2003 submitted their reports. Sixty-five percent submitted their reports, indicating a lack of compliance with the corporate income tax law in recent years. Therefore, the actions to be taken to comply with the corporate income tax law and the factors influencing it were studied. Survey of 230 companies on 7 factors that affect corporate income tax compliance for instance tax inspection, tax agents, penalty, peer influence, intention to comply with tax, simplicity of tax reporting, and tax knowledge. Factors such as tax agents, tax compliance, peer influence, and the simplicity of tax reporting were confirmed to have a direct impact.

However, it has been proven that the three variables of tax inspection, penalties, and simplicity of tax reporting lead to compliance with the tax through the intention to comply with the tax. If this is to be spread, tax inspections and fines will lead to a tendency to comply with the tax law due to coercive enforcement factors, leading to compliance with the tax law. The simplicity of tax reporting in our

study, which simultaneously affects the intention to comply with the tax law and the tax compliance behaviour, is perhaps one of the reasons for voluntary compliance.

The level of tax knowledge of the respondents is homogeneous, hence may not affect compliance with the tax. Our assumption that businesses have a well-established knowledge of tax laws and regulations does not support their compliance with tax laws. Therefore, more in-depth studies on types and levels of tax knowledge should be further studied.

In addition, the moderating analysis of tax compliance behaviour by the types of activities, location, and size of the business entities illustrated that as the size of the organization increases, compliance with the tax decreases.

Based on the above results, there is a need to further study the factors and conditions that create voluntary compliance with the tax law. In the future, depending on the size of the business, it is necessary to include policies and regulations policies that encourage voluntary compliance with their tax laws.

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# THE DIFFERENCE IN CORPORATE SOCIAL RESPONSIBILITY PROGRAM'S VALUE AND THE SIMILARITY IN ATTITUDE TOWARD CSR FIRMS: KOREA VS. MONGOLIA

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**Abstract.** This study examines the different impacts of CSR Programs (CSRPs) on the value of CSRPs (CSRPV) and the similar ones of CSRPV on attitude toward CSR Firms (CSRFs) between Korea and Mongolia. It also examines the moderating effect of brand identification between CSRPV and attitude toward CSRFs. Above all this study tested the group identity to use as a theoretical background of the other hypotheses.

To achieve this purpose, the detailed CSRPs were made using 2 types of components of publicity (reach, output expression) to measure the CSRPV. The results of this study are as follows: 1) Korea has global identity, Mongolia does local one. 2) In the reach of CSRPs, it was shown that Korea perceived global reach is more valuable but Mongolia did local program is. 3) In the output expressional method of CSRPs, Korea has shown the soft sell to be more valuable but Mongolia has shown no difference between the soft sell and the hard sell. 4) For both Korea and Mongolia, higher the CSRPV, the more favorable the attitude toward CSRFs was. 5) For both Korea and Mongolia, the brand identification was shown to have the moderating effects between the CSRPV and attitude toward CSRFs.

Note: Corporate social responsibility is concerned with the relationship between global corporations and its stakeholders, governments of countries and individual citizens.

**Keywords:** Corporate Social Responsibility, Corporate Social Responsibility programs, value of Corporate Social Responsibility programs, group identity, brand identification

## INTRODUCTION

Today with globalization, most international companies have implemented Corporate Social Responsibility (CSR) activities CSR activities enhance the corporate image or brand image. The positive image ultimately contributes to maximize the brand equity and to favor a positive attitude toward CSR Firms (CSRFs, hereafter referred to as Firms). Brand equity is based on the brand knowledge of consumers in the host country.

This study examines the different and similar impact of market-oriented CSR activities on the response of consumers who live in Korea and Mongolia. A number of scholars have studied diverse topics related to CSR. However, cross-cultural factors of CSR programs (CSRPs, hereafter referred to as Programs) which impact CSR value (CSRV, hereafter referred to as Values) and attitude toward the Firms. The researchers also examine the moderating effect of brand identification. This study will provide theoretical managerial implications such as effective Programs for scholars and business practitioners in charge of international marketing.

## CONCEPTUAL BACKGROUND

### 2.1 CSR and Group Identification

CSR is considered an obligation to follow desired behaviors, to make decisions, and to pursue principles for the benefit of our society. Corporations have economic and legal obligations as well as responsibilities for the whole society [30]. CSR is the concept that includes all economic, legal, ethical, and philanthropic responsibilities that society expects of companies [16].

Today, companies think of social-ethical values and responsibilities, economic value and legal responsibilities as integrated. And they utilize CSR strategically to enhance their own image. Thus, CSR activities are increasing worldwide. Why are these activities highlighted as hot issues today? Scholars are agreed that CSR activities are helpful to improve the image of a company, strengthen corporate competitiveness, and influence positively on attitudes towards firms [15; 23; 31; 10; 7; 28].

With globalization, CSR of global companies entering into developing countries has become critical in the international community in purpose of profit increase [17].

Sureshchandar and others [38] suggested another type of CSR model for developing countries, which is different from the traditional CSR pyramid model. The traditional CSR pyramid model consists of a sequence of ① economic responsibility, ② legal responsibility, ③ ethical responsibility, and ④ charitable responsibility. But, according to [38], the same factors/elements exist but in a different order/sequence. The CSR pyramid model of developing countries consists of ① economic responsibility, ② charitable responsibility, ③ legal responsibility, and ④ charitable responsibility. Economic responsibility is the most basic responsibility in developing countries, but the charitable responsibility takes on more priority than the legal and the ethical responsibilities. This CSR model looks different depending on the external factors of market development, economic, social, cultural, and legal environment.

Since the 1990s Mongolia with its wild nature, natural resources, low population density and literate populace has transferred from a planned socialistic approach to an open-market system. During the earlier period of this transition, many factories and entities were closed and a high unemployment rate occurred. These situations were reported at the World Bank's Guidance on Improvement of Environmental Management (2006). According to the UN country statistics, Mongolia is a developing country. Its GDP per capita is only $3,400, ranked 160th in the world. The CSR approach is not well developed in Mongolia and local consumers have not been exposed to Programs.

However, a majority of business entities of developed nations like Korea have implemented Programs. Around 75 percent of companies in South Korea implement Programs. In addition, almost all South Korean multinational corporations have been implementing Programs since 2010.

External environmental factors also influence ~~on~~ the behavior of individuals, as well as social groups and encourage them to form group identification. Group identification is based on the self-confirmation theory [32]. According to this theory, consumers confirm their identification through

their own beliefs, attitudes and behaviors. At the same time, personality attributes form the view of the world and the values of people because it influences ~~on~~ the properties, results and interpretation of social interaction [33]. In general, group identification is classified as global identification and national identification.

For most Asian developing countries charity has become universal. So they should prioritize charitable responsibility over legal and ethical responsibilities. Taking these studies together, we can predict that Korean people have global identification and Mongolian people have national identity. Therefore, the following research hypotheses are identified:

**H1**: Group identification will appear differently depending on nationality.

**H1-1**: In Korea, global identification will be higher than national identification.

**H1-2**: In Mongolia, national identification will be higher than global identification.

### 2.2 CSR Programs and CSR Product Value

Recent research on international marketing strategies indicates that there are a lot of benefits associated with Consumer Culture Positioning (CCP). Alden, Steenkamp, and Batra (1999) developed CCP as a comprehensive framework. CCP can be classified as Global CCP and Local CCP. Global CCP strategy is defined as one that identifies the brand as the symbol of a given global culture. It does so through meaning transfer, an advertising process by which the brand is associated with other signs that reflect a cultural orientation (e.g., language, aesthetics and themes). Local CCP is defined as a strategy that associates the brand with local cultural meanings. It reflects the local cultural norms and identities. It is portrayed as consumed by local people in their national culture, and/or it is depicted as locally produced for local people.

Consumers having global identification tend to favor Global CCR. On the other hand, consumers with national tend to favor Local CCP.

Viewing a comparative study on the relationship between CCP and CSR, the developed countries prefer global CSR to local. Meanwhile the developing countries prefer local CSR to global [3].

The researchers examined two communication variables - Reach and output expression of Programs –to test the perceived Product Value (hereafter referred to as Value) in the two market areas of Korea and Mongolia.

#### 2.2.1 CSR Program's Reach

Recently the number of scholars, who argue the importance of CSR activities, is increasing. It has actually been reported that multinational corporations conduct more CSR activities in foreign markets than domestic companies [18; 25]. [36] said that the effect of global brand image on product evaluation is based on perceived globalness. And this has a positive relationship with the perceived quality of the brand and the brand's reputation. In addition, consumers with global identification prefer global CSR activities. CSR activity in Korea is assumed compulsory. Thus, Programs are developed well and stream to a high level. Korean international companies tend to conduct global Programs integrating the global programs into local ones. For example, Samsung Electronics is pursuing a global and local reach at the same time. It is concerned with various issues occurring in the world. It has conducted global CSR activities in 10 regions as well as local-based ones depending on the economic and the social welfare situations in 85 countries. Furthermore, it is expected that Koreans prefer global CSR activities. This is because Korea has global identification and a higher tendency to be Global CCP.

On the other hand, [13] argued that CSR is one important localization strategy through which multinational companies can build stable relationships with host countries. Global companies are constantly concerned that local consumers may have an aversion to non-local products [34]. They also argue that domestic-oriented consumers are more influenced by nationalism [27] and evaluate brands on the basis of the cultural unity between products and themselves [36, 37]. In addition, consumers with national identification tend to have Local CCP. Thus, they would prefer local CSR

activities. Contrary to Korea, Mongolian companies consider that they need to conduct CSR activities as well, but they are likely to prefer local Programs This is because Mongolian consumers have local identification and have a higher tendency to be Local CCP.

Therefore, CSR planners should make decisions about the directions, size, and reach of Programs and consider the relationships with the various stakeholders. Namely, global companies need to take into account the reach (global vs. local) according to the CCP of host countries. The Value will be influenced by the reach of the Programs. Therefore, the hypotheses were set as follows.

**H2**: The influence of the Program's reach on the Value appears differently in Korea and Mongolia.

**H2-1**: The global reach is more effective to Value than local reach in Korea.

**H2-2**: The local reach of Programs in Mongolia is more effective than global reach to Value.

### 2.2.2 Output expression of CSR Programs (Soft-sell vs. Hard-sell)

When performing CSR programs, companies generally carry out an output expression to show the performance of their CSR activities. The expressions that are commonly used include; hard-sell vs. soft-sell. Soft-sell is used for emotional, implied, or descriptive advertising. Hard-sell, however, is used for rational, obvious, or realistic appeals [30]. The characteristics of hard-sell and soft-sell are summarized in Table 1.

Table 1. Hard-sell vs. Soft-sell

| Hard-sell | | Soft-sell | |
|---|---|---|---|
| thinking | Rational<br>Logical<br>Analytic<br>Factual<br>concrete | feeling | Creative<br>Instinctive<br>Imaginative<br>abstract |
| explicitness | Precise<br>Explanation<br>Convincing<br>Persuasion<br>Instructive | implicitness | Insinuation<br>Appealing<br>Subjective<br>impressive |
| fact | Educational<br>Descriptive<br>Realistic<br>Informative<br>Evidence-based | image | Entertaining<br>Interpretive<br>Playful<br>Impression-based |

[14] confirmed that more than half of Global CCP advertisements were soft-sell in the analysis of 1,267 ads in 7 countries. Mael and others [30] identified that the Global CCP strategies using soft-sell are much more effective In the overall market. Therefore, we expect a difference of Value between Korea using soft-sell and Mongolia using hard-sell. Therefore, the hypotheses were set as follows.

**H3**: The influence of the Program's output expression on the Value will appears differently in Korea and Mongolia.

**H3-1**: The soft-sell output expression is more effective to Value than hard-sell in Korea.

**H3-2**: The hard-sell output expression is more effective to Value than soft-sell in Mongolia.

### 2.3 Value and attitude towards Firms

Due to the political and economic climate in Mongolia, it is plausible that there are more opportunities for firms to engage in Programs that have an impact on a community. Coupled with potentially lower expectations, this is likely to lead consumers to place greater value on Programs. Value is characterized as the ability of a CSR programs to satisfy consumers' needs related to their community and the importance ~~of~~ those needs give to consumers.

The relationship between CSR and Attitude toward Firms, has been studied considerably. Research has found that a positive attitude toward Firms could substantially improve the effectiveness of its business [2; 9].

Projecting good CSR practices can influence a firm's corporate image since corporate image is the result of interactions between a firm and consumers as well as a firm's attempts to engage in impression management [2]. Research has indicated that creating consumers' positive assessments of CSR practices rests heavily on a corporation's ability to create in consumers' consciousness linkages between a corporation's CSR practices and its corporate image [25; 41; 42].

Ross' (1992) research shows that CSR effects corporate preference, corporate trust and corporate image positively as well as effects the purchase intension [4; 9; 19]. In addition, the CSR is clear recognition then attitude toward the Firms will be positive.

In 2009 in South Korea, research (The Federation of Korean Industries) about CSR in public, 72.2% of CSR companies' image despite the high price, consumers still want to buy a company's goods. The research results confirm this at 78%. From this, it shows that South Korean customers have a high understanding of CSR.

Due to Mongolia's development level, customers lack understanding about CSR as this research determined. Consequently, the research anticipated that when Value is high then attitude toward the Firms will be higher. Therefore, the next hypothesis was set as follows.

**H4**: The Value has a positive influence on the attitude toward Firms in both Korea and Mongolia.

### 2.4 Moderating effect of brand identification

Powerful brand contains customer's emotional connection, important value of customer and customer's core values [6]. When customers use services and goods considered oneness with themselves, they feel the sense of self-definition as well as communicate with others. The higher brand identification is, the higher brand awareness, brand association and brand loyalty is. Consequently brand equity goes much higher [22].

Consumer brand identification (CBI) defined here as a consumer's perceived state of oneness with a brand. It is a valid and potent expression of our quest for identity-fulfilling meaning in the marketplace of brands. This definition is consistent with the organizational behavior literature, wherein identification typically has been defined as a perception of coherence with or belongingness to some human aggregate, such as employees with their companies or students with their alma maters [1; 5; 8; 30]. Noting that consistent with the theory in this domain [5; 8], this study assumes that the state of CBI is distinct from the process of comparison of self traits with brand traits that may contribute to CBI.

Social identification is essentially a perception of coherence with a group of persons [1]. In the organizational context, it has been defined as being "the degree to which a member defines him-or herself by the same attributes that he/she believes define the organization" [20]. Applying the identification concept in such a brand-customer context can be justified in terms of the social identity theory itself, where the notion of identification with an organization can also happen without a need to interact or to have formal ties with an organization [8].

In social psychology, social identification means that a person identifies him/herself as a member of a society. An expression of identification with an organization is treated as a special type of social identification [7; 24; 30].

**H5**: For both Korea and Mongolia, the impact of the Value on the attitude toward of Firms is moderated by the brand identification.

## METHODS

This study examines artificial Programs run by the global company APPLE. Its efforts involve a partnership with a global non-profit organization (NPO), UNICEF, and local partner in the country in which the Programs take place. In the experiment, this study tested hypotheses by asking respondents to read an artificial CSR publicity through the press release in which the reach and the output expression of Programs varied across experimental conditions. The SPSS 18.0 was used for various analyses such as descriptive statistics, Factor analysis, reliability, multiple regression analysis, etc. on the collected data were also used.

### Design

The design for the experiment was a 2 (reach: global vs. local) x (output expression: soft-sell vs. hard-sell) x 2 (Country: South Korea and Mongolia) design in which we randomly assigned participants to experimental conditions. The study replicated and repeated the design with two subject pools-one from Gumi City and the other from Ulaanbaatar City. A native speaker translated the survey items and press release from Korean to Mongolian and then back translated them for accuracy using [13] recommended procedures. (The Korean version of the questionnaire was double-back-translated into Mongolian.)

### Samples

The Mongolian sample consisted of 213 consumers. Researchers approached participants at 2 different universities in Ulaanbaatar City. Of the participants, 73% were women, and 68% were age of 20 and below, and 32% were between the ages of 20-40. The Korean sample consisted of 276 consumers. Researcher approached the participants at two different universities in Gumi. Of the participants, 83% men, and 30% were age of 20 and below, and 70% were between the ages of 18 and 40.

### Procedures

Researchers gave direction to participants to read a news item and to answer a series of questions regarding the target firm, the information received, and CSR in general. Upon completion of the tasks, researchers thanked the respondents for their participation, debriefed them, and gave them information about the firm's artificial CSR efforts in their respective countries.

### Measures

### Independent Variables

Four independent variables were tested in this study: country and group identification, reach, and output expression. The first variable reflects the countries in which data were collected: Korea and Mongolia and their group identity was measured using seven-point Likert-scaled items: five items for global identity and eight items for national identification [21].

Reach refers to the geographic area of the Programs, and it is characterized as either global or local in the press release. The output expression, the final variable, refers to the type of output information shared in the press release. The program-only condition, soft-sell, describes efforts in board, general terms (i.e., what occurs and the target population), whereas the social impact condition, hard-sell, provides specific outcome data (e.g. number of students who complete the program and graduate high school). In addition, country is used as a covariate in the study.

The study determines Value using three seven-point Likert-scaled questions [29]: "I value CSR programs," "CSR programs are helpful," and "CSR programs are important" (Cronbach's α in Korea=.913, and Cronbach's α in Mongolia=.875).

The brand identification is similar to those identified in prior research [3]: "is an important brand", "has quality products", "has reliable products", "understand its consumers", "is a brand I feel good about", and "is a brand I trust" (Cronbach's α in Korea=.913, and Cronbach's α in Mongolia=.875).

**Dependent variable**

The study measured the attitude toward the Firms in a pretest-post test way using three items for each construct [3]. Attitude consists of the following: "This is a good firm" "I like this firm," and "I believe in this firm" (Cronbach's α in Korea=.946, and Cronbach's α in Mongolia=.552)

## ANALYSIS AND RESULT

The manipulation checks reveal that the three independent variables operate as predicted, with more than 84% of participants identifying reach (85.5%), source (87%), and program detail (91%) correctly. Although participants identified the condition category (e.g. reach as global or local), they could not identify other details about the program (e.g. how long the firm had been involved with the initiative, what annual expenditures were, and so forth, at 30% accuracy), indicating that participants did not expend much effort processing CSR communications and the conditions served as processing cues (e.g. global reach program indicated a global firm and large effort). This is consistent with prior research by [43]. The results of analysis are summarized in Table 1, 2, 3 and 4.

### 4.1 Hypothesis 1 testing results

Hypothesis 1 is to test that the group identity appears differently in Korea and Mongolia (H1). To test H1, t-test was performed by using the country (Korea vs. Mongolia) as independent variable and the group identity as dependent variable. The results of analysis are summarized in Table2.

Table 2. CSR Reach & Value

| | | ***N*** | ***M*** | ***S.D*** | ***t*** | ***p*** |
|---|---|---|---|---|---|---|
| Korea | Global | 276 | 4.952 | 1.090 | 15.383 | .00*** |
| | National | 276 | 4.339 | 1.135 | | |
| Mongolia | Global | 213 | 4.286 | 1.438 | 24.373 | .00*** |
| | National | 213 | 5.428 | 1.368 | | |

***p< 0.001

The group identity in Korea is global one ($M_{global}$=4.95, $M_{national}$=4.33, t=15.383, p< .001). In Mongolia the group identity is national one ($M_{global}$=4.28, $M_{national}$=5.42.42, t=24.373, p< .001). Thus, H1 was supported in significance level of 0.001.

### 4.2 Hypothesis 2 testing results

Hypothesis 2 is to test that the influence of Program's reach on the Value will appear differently in Korea and Mongolia (H2). To test H2, t-test was performed by using the Program's reach (Global vs. Local) as independent variable and the Value as dependent variable. The results of analysis are summarized in Table3.

Table 3. Program's Reach & Value

| | | ***N*** | ***M*** | ***S.D*** | ***t*** | ***p*** |
|---|---|---|---|---|---|---|
| Korea | Global | 129 | 4.863 | 1.206 | 2.027 | .091* |
| | Local | 147 | 4.539 | 1.415 | | |
| Mongolia | Global | 90 | 4.744 | 1.651 | -1.577 | .024* |
| | Local | 123 | 5.067 | 1.338 | | |

*p< 0.1

In the results of test, the Value of global reach is higher than that of local reach in Korea ($M_{Global}$=4.86, $M_{Local}$=4.53, t=2.027, p<0.1). However the CSRV of local reach is higher than that of global reach in Mongolia ($M_{Local}$=5.067, $M_{Global}$=4.744, t=-1.577, p< 0.1). The H2 was supported in significance level of 0.1.

### 4.3 Hypothesis 3 testing results

Hypothesis 3 is to test that the influence of Program's output expression on the Value will appear differently in Korea and Mongolia (H3). To test H3, t-test was performed by using the output

expression of Program's (Soft-sell vs. Hard-sell) as independent variable and the Value as dependent variable. The results of analysis are summarized in Table4.

Table 4. CSR output expression & Value

| | | ***N*** | ***M*** | ***S.D*** | ***t*** | ***p*** |
|---|---|---|---|---|---|---|
| Korea | Soft-sell | 139 | 4.822 | 1.436 | 1.663 | .019** |
| | Hard-sell | 137 | 4.557 | 1.201 | | |
| Mongolia | Soft-sell | 115 | 4.985 | 1.446 | .578 | .748 |
| | Hard-sell | 98 | 4.867 | 1.530 | | |

**p<.05

The soft-sell is more effective to Value than hard-sell in Korea ($M_{\text{Soft- sell}}$=4.82, $M_{\text{Hard-sell}}$=4.55, t=1.663, p< .05). In Mongolia there is no difference between soft sell and hard sell expression ($M_{\text{Soft-sell}}$=4.98, $M_{\text{Hard-sell}}$=4.86, t=.578, p=.748, ns). Thus, H2 was supported partially in significance level of 0.05.

**4.4 Hypothesis 4 testing results**

For the analysis of Hypothesis 3, a simple regression was performed to identify the positive impact of the Value on the attitude toward the Firms. The Value was considered as independent variable while the attitude toward Firms was considered as dependent variable.

Table 5. Value on the attitude toward Firms

| ***Variable*** | | ***$R^2$*** | ***F*** | ***β*** | ***t*** | ***p*** |
|---|---|---|---|---|---|---|
| Attitude toward the Firm | Korea | .197 | 67.162 | .444 | 8.195 | .000*** |
| | Mongolia | .117 | 28.013 | .342 | 5.293 | .000*** |

***p<.001

Simple regression analysis of Korea resulted that F=67.162, dependency was 0.001, $R^2$=0.197 and consequently, regression model was described by 19.7%. This analysis of Mongolia resulted with F= 28.013, dependency was the same as Korean analysis of 0.001, $R^2$= 0.117 and regression model was described by 11.7%. Specifically, the result showed that Value has a significantly positive relationship on attitude toward Firms in Korea and Mongolia. (Korea: β=0.44, t=8.19, p<0.001; Mongolia: β=0.34, t=5.29, p<0.001). Finally, H3 was supported.

**4.5 Hypothesis 5 testing results**

For both Korea and Mongolia, the impact of the Value on the attitude toward Firms is moderated by the brand identification as H4 is determined above. Two separate hierarchical regression analyses were performed to test the main effects of Value on attitude toward Firms, in addition to exploring the moderating effects of brand identification.

Step 1 checked Value and attitude toward the Firms, whereas step2 checked the main effects of between Value and brand identification on attitude toward the Firms. Finally, step3 checked the two way interaction effects between Value and brand identification on attitude toward the Firms.

Table 4 illustrates that hierarchical multiple regression analysis for Korea is $R^2$=0.881 that has higher dependency and close to probability of 0.01. Brand identification has affected moderately between the Value and the attitude toward the Firms. Value*brand identification resulted as β=.182 with p<0.01.

The Table 4 also illustrates that hierarchical multiple regression analysis for Mongolia is $R^2$=0.905 that has higher dependency and close to probability of 0.01. Brand identification has affected

moderately too between the Value and the attitude toward the Firms. Value*brand identification resulted as β=.178 with p<0.01. Consequently, H5 was proved.

Table 6. Moderating effect of brand identification

| | | ***Attitude toward CSR firm*** | | |
|---|---|---|---|---|
| | | Step1 | Step2 | Step3 |
| Korea | Value(A) | .447*** | .322*** | .817*** |
| | Brand identification(B) | | .517*** | .119*** |
| | A*B | | | .182*** |
| | $\Delta R^2$ | .197*** | .229*** | .455*** |
| | $R^2$ | | .426*** | .881*** |
| Mongolia | Value(A) | .228*** | .217*** | -.777*** |
| | Brand identification(B) | | .028*** | .030*** |
| | A*B | | | .178*** |
| | $\Delta R^2$ | .117*** | .001*** | .787*** |
| | $R^2$ | | .118*** | .905*** |
| | *p<.05, **p<.01, ***p<.001 | | | |

Table 7. Structural model estimates

| ***Effects between constructs*** | ***Standardized path coefficients*** | ***Conclusion*** |
|---|---|---|
| Hypothesis2 | | |
| H2-1: Global Reach →Value in Korea | 0.091 (p< 0.1) | Supported |
| H2-2: Local Reach →Value in Mongolia | 0.024 (p< 0.1) | Supported |
| Hypothesis3 | | |
| H3-1: Soft-sell →Value in Korea | | |
| H3-2: Hard-sell →Value in Mongolia | 0.019 (p<0.05) | Supported |
| Hypothesis4: Value →Attitude toward the Firms in Korea and Mongolia | 0.748 (p<0.05) | Not supported |
| Hypothesis5: Value*Brand Identification →Attitude toward the Firms in Korea and Mongolia | .000 (p<0.001) | Supported |
| | $R^2_{Korea}$=.881, $\Delta R^2_{Korea}$ =.229 ; $R^2_{Mongolia}$=.905, $\Delta R^2_{Mongolia}$ =.001; (p<0.001) | Supported |

## DISCUSSION AND CONCLUSIONS

### Theoretical Implications

There are a lot of papers studying CSR procedure. However, research work on CSR program's value and brand identification, attitude toward the CSR firms connected to the cross culture, especially paper regarding Korea compared to Mongolia, is less or none.

Therefore analysis of this paper is significant in terms of its new release about the effect CSR program's value and attitude toward the CSR firms.

## Managerial Implications and Further Research

This research considers needs of comparative study on best CSR programs of Korean multinational corporations, NPOs as well as joint ventures of Korea and Mongolia. These studies can include Mongolian mining companies how they implement CSR programs exploring best practices of Korean companies who run good programs. Persistent studies can help companies to have sense how customer attitude is changing and what kind of CSR program is working effective and efficient in which circumstances.

The need of such research work can help further to contribute to sustainable development of countries as CSR plays key role for sustainable development. Especially, Mongolia has been affected much the global warming and therefore, the country needs to support corporate culture among various stakeholders. However, findings of various research works reveal that social responsibility of business entities in Mongolia regarding prevention from natural and environmental degradation is inadequate.

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# STUDY RESULT ON ONLINE LEARNING THROUGH SURE EVALUATION MODEL

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**Abstract.** We need to evaluate online training in order to determine positive and negative aspects and estimate the quality of online training. In this study, as Basics of Statistics curriculum, aspects affecting online learning quality which are training materials, training environment, training facilitator, training assessment methods, and students' knowledge and skills are evaluated through the structure-based SURE model in the terms of 5 key issues and 30 sub-questionnaires.

The main advantage of the structure-based SURE evaluation model is that it is a method of accounting data in coordination with a logical structure. Evaluation questionnaires were filled out the students studying the course, the data were processed, and 4 types of assessments were launched. The promoted objectives were summarized and we have revealed some recommendations not only for instructors implementing the Basics of Statistics curriculum, but also other courses lecturers.

The research will be a crucial tool for analyzing teaching activities, further improving the quality of teaching, and improving teaching methods of the instructors.

**Keywords**: evaluation sure model, serial structure, parallel structure, course assessment, student assessment

## INTRODUCTION

One of the main goals of educational institutions is the quality of education. The quality of training is assessed by a set of criteria to determine whether it meets the requirements. The concept of training evaluation is what defines the quality and ranking of training and further educational activities.

Therefore, in the 1940s, the first research on how to evaluate the quality of education was conducted in the United States and scientific articles were published. Educational evaluation Under the concept of "educational evaluation", many researchers have been conducting intensive research since the 1950s, developing their own models.[3]

Training evaluation is a complex, multi-stakeholder process. Therefore, the assessment should be as wide-ranging as possible. Evaluating training is a matter of evaluating the curriculum as a whole. The assessment of the "Basics of Statistics" course, one of the most important basic skills for the new century professionals, will provide them with the basic skills of critical thinking and system analysis. In this study, the teacher develops the research problem, collects the data from the students, and gives a self-assessment of the lesson.[4]

A teacher's habit of self-assessment is the basis for further improvement and development of the lesson and a positive and creative approach to external assessment.

I have read People – Process – Product Continuum Model" - 3P e-learning model, CIPP Model (Context, Input, Process, Product), SERVQUAL, "Four Levels of Evaluating Learning" many models. They have their own unique advantages and disadvantages. Most models are based on certain criteria and are calculated linearly.

The SURE model we use is a scientific and mathematical approach to creatively assessing a lesson and assessing the teacher's teaching methods, teaching materials used in the lesson, learning environment, learning assessment methods, and whether the student's knowledge and skills are relevant and achievable is a way to meet the situation.

The reason for choosing the SURE model is that the evaluation involves processing the problem and data together in a step-by-step manner8 defining the results in a complex way.

**Objectives of the study**: To evaluate the "Basics of Statistics" course using the structure-based SURE model, to identify issues to be considered in the evaluation results, and to make specific recommendations.

**Objective**:

1. Determine the overall grade of the curriculum
2. Define an assessment for each of the five main objectives of the assessment
3. Determine the evaluation of each of the 30 sub-objectives of the evaluation
4. Determine the assessment of each student who participated in the survey
5. Draw conclusions and develop suggestions and recommendations for the course

## METHODOLOGY

Definition of structure-oriented evaluation (SURE) model

The structure-oriented evaluation (SURE) model originally was developed for e-learning with focus of multidimensional evaluation spaces The following steps were identified during the training evaluation. These include:

1. For implementation of the SURE model evaluators have to follow pre denied eight steps.

B1- Training materials and curriculum

B2- Creating a learning environment

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[3] Education "E-learning quality assessment" T.Uranchimeg

[4] E-learning evaluation direction and model – focus and models of evaliation of the e-learning

B3- Training faculty

B4- Knowledge and skills acquired by the student

B5- Methods and forms of training evaluation

2. Definition of sub goals

B1- Training materials and curriculum

3. Lesson goals and objectives
4. The capacity of the training material is appropriate for the duration of the training
5. The content and format of the training were prepared in an interesting way to encourage learning
6. The forms in which the training materials were included in the Moodle training program were appropriate
7. The homework was related to the content of the lecture and additional materials
8. The homework discussion was productive.
9. Find books, textbooks, and additional reading materials

B2 - Creating a learning environment

1. Moodle training software operation
2. e.mandakh.edu.mn training program operation
3. Visibility of course materials during e-learning
4. E-learning environment
5. The impact of student-accessed devices on e-learning

B3- Training leader teacher

1. Is the teacher's advice good?
2. Does the teacher answer the questions asked?
3. Does the teacher have regular contact with the student?
4. Whether the teacher checks the performance of the task from time to time
5. Warning

B4- Knowledge and skills acquired by the student

1. Ability to find, evaluate and use information
2. Ability to think, draw conclusions, and compare
3. Ability to make informed decisions
4. Have the ability to approach research in the right order
5. Awareness of the importance of predicting the future and the ability to make accurate assessments
6. Awareness of the importance of previous data and the ability to make accurate assessments
7. Are you learning teamwork skills?
8. Are you learning to express yourself?

B5- Methods and forms of training evaluation

1. Whether the timing of the policy you are considering during the workshop is appropriate
2. Is the assessment of homework clear?
3. Is the assessment of class activity clear?
4. Whether the evaluation of the progress tests is clear
5. Whether the progress tests are completed on time

Figure 1 shows logical structure of sub goals.

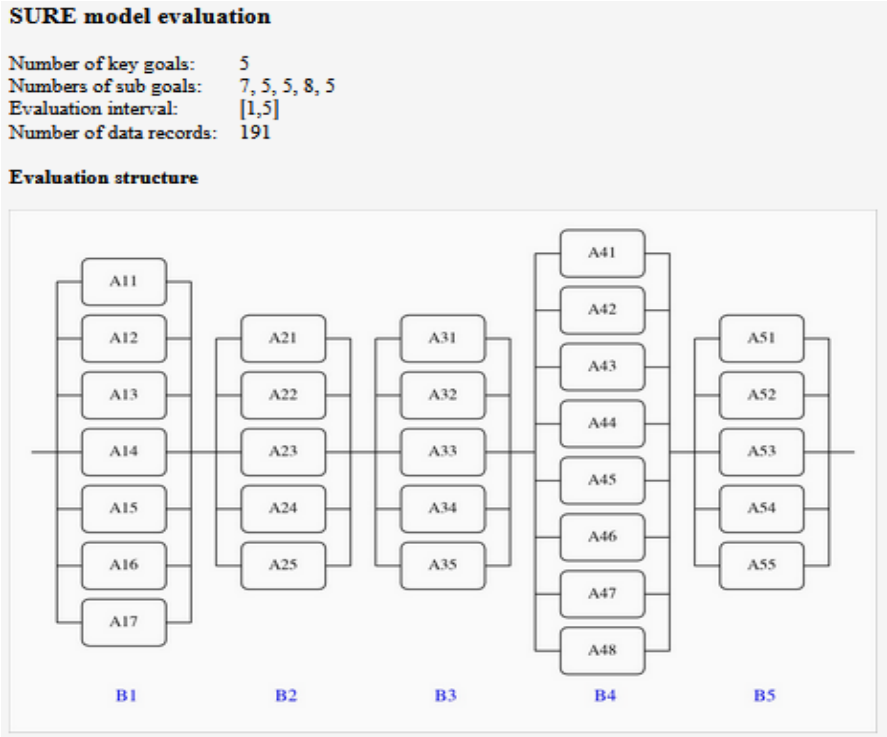



Figure 1. The logical structure for sub goals

3. Confirmation of evaluation goals

The defined logical structures of evaluation have to be checked and proofed by evaluation team, or groups who can be interested or applied evaluation results after evaluation process. Result of this step should be writing protocol about confirmation of logical structures of evaluation.

4.Develop a questionnaire

The SURE model questionnaire was developed according to the sub-objective structure of the logical structure described in the previous steps, and a SURE model was developed over a seven-day study using 191 forms using the Google form to study the basics of statistics.

5.Data processing[5]

One of the advantages of structure oriented evaluation model are the clear defined calculation rules for data processing step.

The empirical score Q∗(C) for evaluation of goal structure C is calculated by

$$Q^*(C) = \frac{1}{n}\sum_{k=1}^{n}\prod_{i=1}^{r}\left(1-\prod_{j=1}^{s_i}\left(1-q_{ij}^{*(k)}\right)\right)$$

Here $q_{ij}^{*(k)}$ denotes for k = 1, ..., n the empirical score for sub goal $A_{ij}$ according the $k^{th}$ checklist result. This value is obtained by normalisation of checklist value $x_{ij}^{(k)}$, where $x_{ij}^{(k)}$ is the obtained score or answer of $k^{th}$ student to checklist question how the sub goal $A_{ij}$ has been achieved.

7.Data collection

30 questions on course evaluation were approved and collected according to the questionnaire.

[5] Uranchimeg Tudevdagva: ***Structure Oriented Evaluation Model for E-Learning***. Wissenschaftliche Schriftenreihe Eingebettete Selbstorganisierende Systeme, Universitätsverlag Chemnitz, Chemnitz, Germany, July 2014. 123 p., ISBN: 978-3-944640-20-4, ISSN: 2196-3932.

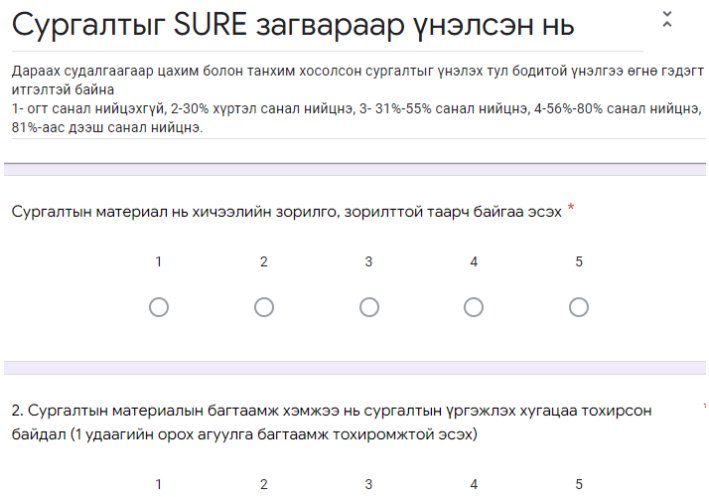



Figure 2. Google form

The evaluation criteria are expressed in numbers 1-5 as follows. This includes

Үүнд:

More than 5-81% agree

4- 56-80% -agree

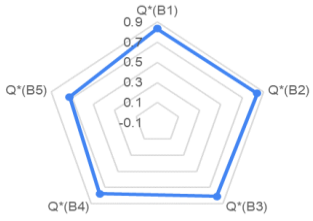
3- 31-55% agree

2- 30% agree

1- I do not agree at all.

**RESULTS OF THE STUDY**

The survey was attended by 191 students, 46 men, and 63 women from the “Fundamental statistics” course. In the age group, students were between the ages of 18 and 22. According to our survey, the overall percentage showed a standard deviation of 0.1692 or moderate variation when divided into two different groups. The result was made by the answer because the percentages of equals or averages are equal. The following results were obtained from the SURE model, which evaluated the five main objectives and 30 sub-objectives of the training assessment. The core target is presented by a serial structure and is estimated below.




$$Q_e^*(B_1) = 0{,}8360$$
$$Q_e^*(B_2) = 0{,}8393$$
$$Q_e^*(B_3) = 0{,}8091$$
$$Q_e^*(B_4) = 0{,}7740$$
$$Q_e^*(B_5) = 0{,}7266$$

Figure 1. The result of a serial structure

The sub-objectives were evaluated by the following parallel structure.

This is result of training materials and curriculum for 7 interrogators.

| Q*(A11) | Q*(A12) | Q*(A13) | Q*(A14) | Q*(A15) | Q*(A16) | Q*(A17) |
|---|---|---|---|---|---|---|
| 0.7552 | 0.7147 | 0.6230 | 0.7984 | 0.6575 | 0.6623 | 0.6453 |

The results show that the purpose of the lesson is clearer and easier to understand, and it is beneficial for to include training materials in the Moodle system.

1. The learning environment was evaluated by five questionaries.

| Q*(A21) | Q*(A22) | Q*(A23) | Q*(A24) | Q*(A25) |
|---|---|---|---|---|
| 0.8220 | 0.6440 | 0.6505 | 0.7173 | 0.7081 |

The results show that the structure is rated high, but the E-Mandakh training program development and projector output are rated low.

2. The supervisors have been assessed with the aid of using 5 questionaries.

| Q*(A31) | Q*(A32) | Q*(A33) | Q*(A34) | Q*(A35) |
|---|---|---|---|---|
| 0.7134 | 0.7526 | 0.6872 | 0.7696 | 0.7016 |

The result shows regular contact between the instructor and the student was inferior.

3. Student knowledge and skills were assessed using eight questionaries.

| Q*(A41) | Q*(A42) | Q*(A43) | Q*(A44) | Q*(A45) | Q*(A46) | Q*(A47) | Q*(A48) |
|---|---|---|---|---|---|---|---|
| 0.6924 | 0.6832 | 0.6937 | 0.6806 | 0.6702 | 0.6911 | 0.7277 | 0.7251 |

The above eight questions scored about 60%, based on the lack of knowledge and skills the student acquired.

4. The method and format of the training assessment was evaluated by five interrogators.

| Q*(A51) | Q*(A52) | Q*(A53) | Q*(A54) | Q*(A55) |
|---|---|---|---|---|
| 0.5942 | 0.6335 | 0.6924 | 0.5079 | 0.6911 |

Students scored similarly low on five questionaries, and two questions, such as whether the time to complete the assignment in the seminar lesson was appropriate and whether the progress assessment was clear were the lowest of the 30 questions in total.


Figure 2. The result of the question

The following figure shows the results of a total of 30 questions.

A54 - a minimum score of 0.5 indicates that the results of the progress tests are not clear to students, A51 - a score of 0.59 indicates that the timing of the policy is not appropriate for the seminar, A21 - 0.8 is the highest score, and e.mandakh.edu.mn shows that the training program is working well.

The rankings for every assessment solution and the rankings of every student`s solution as follows:

| | $B_1$ | | | | | | | $B_2$ | | | | | $B_3$ | | | | | $B_4$ | | | | | | | | $B_5$ | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| k | $A_{11}$ | $A_{12}$ | $A_{13}$ | $A_{14}$ | $A_{15}$ | $A_{16}$ | $A_{17}$ | $A_{21}$ | $A_{22}$ | $A_{23}$ | $A_{24}$ | $A_{25}$ | $A_{31}$ | $A_{32}$ | $A_{33}$ | $A_{34}$ | $A_{35}$ | $A_{41}$ | $A_{42}$ | $A_{43}$ | $A_{44}$ | $A_{45}$ | $A_{46}$ | $A_{47}$ | $A_{48}$ | $A_{51}$ | $A_{52}$ | $A_{53}$ | $A_{54}$ | $A_{55}$ | $Q_{\tilde{e}k}^*(C)$ |
| 1 | 0.75 | 0.75 | 1 | 0.75 | 0.75 | 1 | 0.75 | 1 | 1 | 0.75 | 0.5 | 0.75 | 0.75 | 1 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.5 | 0.75 | 0.75 | 0.75 | 0.75 | 0.25 | 0.25 | 0.85 |
| 2 | 0.75 | 0.75 | 0.5 | 0.75 | 0.5 | 0.75 | 0.75 | 1 | 0.5 | 0.5 | 0.75 | 0.75 | 1 | 1 | 0.75 | 1 | 1 | 0.75 | 0.75 | 0.5 | 0.75 | 0.5 | 0.75 | 0.5 | 0.75 | 0.5 | 0.75 | 0.75 | 0.5 | 0.75 | 0.79 |
| 3 | 0.75 | 0.5 | 0.75 | 1 | 0.75 | 1 | 0.75 | 0.75 | 1 | 0.75 | 0.75 | 0.75 | 1 | 1 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.5 | 0.75 | 0.5 | 0.5 | 0.75 | 0.75 | 0.75 | 1 | 0.75 | 0.25 | 0.75 | 0.92 |
| 4 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0.75 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 5 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0.75 | 0.25 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0.25 | 1 | 1 | 0.5 | 1 | 1 |
| 6 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.5 | 0.75 | 0.75 | 0.75 | 0.75 | 0.5 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.5 | 0.5 | 0.75 | 0.25 | 0.5 | 0.69 |
| 7 | 0.5 | 0.5 | 0.75 | 0.5 | 0.25 | 0.25 | 0.5 | 1 | 1 | 1 | 0.75 | 0.5 | 0.5 | 0.25 | 0.25 | 1 | 0.75 | 0.5 | 0.5 | 0.5 | 0.5 | 0.75 | 0.75 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.75 | 0.5 | 0.69 |
| 8 | 0.75 | 0.75 | 0.5 | 0.75 | 0.75 | 0.75 | 0.75 | 1 | 1 | 0.75 | 0.75 | 0.5 | 1 | 1 | 1 | 1 | 1 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.25 | 0.25 | 0.5 | 0.5 | 0.5 | 0.74 |
| 9 | 0.75 | 0.75 | 0.5 | 0.5 | 0.75 | 0.75 | 0.75 | 1 | 0.25 | 0.25 | 0.75 | 0.75 | 0.75 | 1 | 1 | 1 | 1 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 1 | 0.5 | 1 | 1 | 1 | 1 | 0.93 |
| 10 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.5 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 1 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.5 | 0.75 | 0.78 |
| 11 | 1 | 0.5 | 0.25 | 0 | 0.5 | 0.5 | 0.25 | 0.5 | 0 | 0.75 | 0.75 | 0.25 | 0.5 | 1 | 0.75 | 1 | 0.75 | 0.25 | 0.5 | 0.75 | 1 | 0.75 | 0.5 | 0.5 | 0.75 | 0.5 | 0.5 | 0.75 | 0.5 | 0.75 | 0.8 |
| 12 | 0.25 | 0.25 | 0 | 0.25 | 0.25 | 0 | 0.25 | 0.75 | 0.5 | 0.5 | 0 | 1 | 0.25 | 0.25 | 0 | 0 | 0 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.5 | 0.5 | 0.5 | 0.75 | 0.5 | 0.5 | 0.75 | 0.33 |
| 13 | 1 | 1 | 1 | 1 | 0.5 | 0.5 | 1 | 1 | 0.5 | 1 | 1 | 0.75 | 0.75 | 0.75 | 1 | 0.5 | 1 | 0.25 | 0.5 | 1 | 0.75 | 0.5 | 0.75 | 1 | 0.75 | 0.5 | 0.5 | 0.75 | 0.5 | 0.75 | 0.91 |
| 14 | 0.5 | 0.5 | 0.75 | 0.75 | 0.75 | 0.75 | 0.5 | 1 | 1 | 1 | 0.5 | 0.75 | 0.75 | 1 | 0.25 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 1 | 1 | 0.25 | 0.5 | 0.5 | 0.25 | 0.25 | 0.75 |
| 15 | 0.5 | 0.75 | 0.75 | 0.5 | 0.75 | 0.5 | 0.5 | 0.75 | 0.5 | 0.5 | 0.75 | 0.5 | 0.75 | 0.75 | 0.5 | 0.5 | 0.75 | 0.75 | 0.5 | 0.5 | 0.5 | 0.5 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.66 |
| 16 | 0.75 | 0.75 | 0.5 | 1 | 0.5 | 0.5 | 0.5 | 1 | 0.75 | 0.75 | 0.75 | 0.75 | 0.5 | 0.75 | 0.5 | 0.75 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.75 | 0.75 | 1 | 0.5 | 0.75 | 0.79 |
| 17 | 0.5 | 0.75 | 0.75 | 1 | 1 | 1 | 0.75 | 0.75 | 0.75 | 0.75 | 0.5 | 0.5 | 1 | 1 | 1 | 1 | 1 | 0.75 | 1 | 0.75 | 0.75 | 1 | 0.75 | 0.75 | 0.75 | 0.25 | 1 | 0.5 | 0.5 | 0.5 | 0.92 |
| 18 | 0.75 | 0.5 | 0.25 | 1 | 0.5 | 0.75 | 0.75 | 0.75 | 0.75 | 0.5 | 0.75 | 1 | 0.75 | 0.25 | 0.5 | 0.5 | 0.75 | 0.75 | 0.75 | 0.75 | 0.5 | 0.75 | 0.25 | 1 | 1 | 1 | 1 | 1 | 0.75 | 1 | 0.9 |
| 19 | 0.75 | 1 | 0.75 | 1 | 1 | 0.75 | 1 | 1 | 0.5 | 0.75 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0.75 | 0.75 | 0.75 | 1 | 0.75 | 0.75 | 1 | 1 | 0.25 | 0.5 | 1 | 0.75 | 1 | 1 |
| 20 | 1 | 1 | 0.75 | 1 | 1 | 1 | 0.25 | 0.75 | 0.5 | 0.75 | 1 | 0.5 | 1 | 1 | 0.75 | 1 | 1 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 1 | 1 | 0.75 | 0 | 0.75 | 0.75 | 0 | 0.5 | 0.87 |

The SURE model estimates the results and displays the order of the scores by score and color. Each color represents the following score. For example, a score of 5 indicates 1 (green) and a 1 score indicates 0 (red).

| 1 | 1.4 | 1.8 | 2.2 | 2.6 | 3 | 3.4 | 3.8 | 4.2 | 4.6 | 5 |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1 |

**Empirical evaluation score $Q_{\tilde{e}}(C)$**

$$Q_{\tilde{e}}^*(C) = 0.772227$$

191 students participated in the evaluation of the course "Fundamental Statistics", resulting in a course evaluation of 0.7722 and a course quality of 77.2%.

| $1-\alpha$ | $q_{\tilde{e},0}^*$ | $Q_{\tilde{e}}(C)$ | $q_{\tilde{e},1}^*$ | $\sigma_{\tilde{e}}^*$ |
|---|---|---|---|---|
| 0.90 | 0.7521 | 0.7722 | 0.7924 | 0.1692 |
| 0.95 | 0.7482 | | 0.7962 | |
| 0.99 | 0.7407 | | 0.8038 | |

Sample size $n$ =191

Sample size 191 and confidence levels 0.9, 0.95, 0.99 show standard deviation or moderate variation of 0.1692.

## CONCLUSION

1. The course “Fundamental Statistics” was rated at 0,7722 or 77.2%. This means a rate between 3.84.2 points for a 5-point system.
2. In the serial structure assessment of five main objectives, the highest scores were training materials (B10.8360), learning environment (B20.8393), and supervisor`s evaluation (B30.8091). And evaluation methods and forms for students (B50.7266), students` knowledge and skills (B10.7740) are estimated low.
3. The result of the questionnaire was that the time to complete the assignment in the seminary class was not appropriate and the evaluation of the progress evaluation was not clear was the lowest score among the total of 30 questions.
4. 

## RECOMMENDATIONS

1. To define more clearly main and sub-objectives.
2. When gathering survey data, try to be as realistic and accurate as possible.
3. Focus on improving the objectives that are rated as inadequate. (Methods and forms for assessing students and student knowledge and skills)
4. Raise the lowest sub-objective score. (By selecting the appropriate assignments during the seminar class, the result of the progress assessment will become clearer.)

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# EXPERIMENT RESULTS OF SEED COATING EQUIPMENT

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**Abstract.** Seed vary greatly in size, shape and color. In many cases, seed size is small or irregular, making them uniformly and precision placements are difficult. In addition, seeds should be protected from a range of pests that attack germination of seeds or seedlings. This article presents the results of an technological parameters of seed coating equipment. The optimal values on seed coating were defined and optimum ratio of mixture determined as 2 (fodder: wheat dust = 1:2) cylinder rotation speed of device was 42rpm and slope angel of pan was 50 degree.

**Keywords:** moisture, weight, duration, size, shrinkage coefficient

## INTRODUCTION

Post-harvest treatment that improve germination or seedling growth or facilitate the delivery of seeds and other materials required at the time of sowing [1]. It is the process of enclosing a seed with a small quantity of inert material just large enough to facilitate precision planting. Or it is the mechanism of applying needed materials is such a way that they affect the seed or soil at the seed soil interference [2].

Seed coating is the process of applying exogenous materials to the surface of the natural seed coat. This practice is used to modify the physical properties of seed, and for the delivery of active ingredients [4]. The physical modification of seed aims to improve seed handling through standardisation of seed weight and size [5]. In some cases, where the aim is to reduce friction and improve flowability, the alteration of seed morphology is minimal, but for small (e.g., begonia or tobacco), expensive, or morphologically uneven seeds, a thicker coverage is often applied. The artificial coat is frequently used as a carrier for a variety of active ingredients. Seed-coating technologies have been developed on crop and vegetable species for the most part, and, to a lesser extent, on seeds of turf grass, pasture, and flowers. The application of coatings to native species for ecological restoration has received little attention, with only sporadic evaluation in the scientific literature [6–8] and, so far, this field remains overlooked by the major agrochemical and seed technology companies.

*Seed vary greatly in size, shape and color. In many cases, seed size is small or irregular, making singularization and precision placement difficult. In addition, seeds should be protected from a range of pests that attack germination seeds or seedlings.*

*Seed-coating technologies can be employed. For two purposes: they can facilitate mechanical sowing to achieve uniformity of plant spacing, and can act as a carrier for plant protectants. So materials can be applied in the target zone with minimal disruption to the soil ecology and environment [1].*

Coating plant seeds prior to planting is a common practice in modern agriculture. Seed is coated when growers need a precision-sown crop and the non-coated seed is too small, too light, or too variable in size or shape to be sown accurately with existing equipment.

The basic coating treatment is film coating, where a thin layer of external material (usually < 10% of seed weight) is applied. Where seed weight is increased up to 100–500% (depending on seed morphology), the procedure is described as ‘encrusting’, and is defined as such as long as the original shape of the seed is still evident [10]. Where the amount of external material makes it impossible to discriminate the initial seed shape (the result usually being a spherical shape), the process is named ‘pelleting’ [1]. While film coated and encrusted seed are discerned by weight, pellets are sorted by diameter. Seed coating equipment and coat type is shown in figure 1.

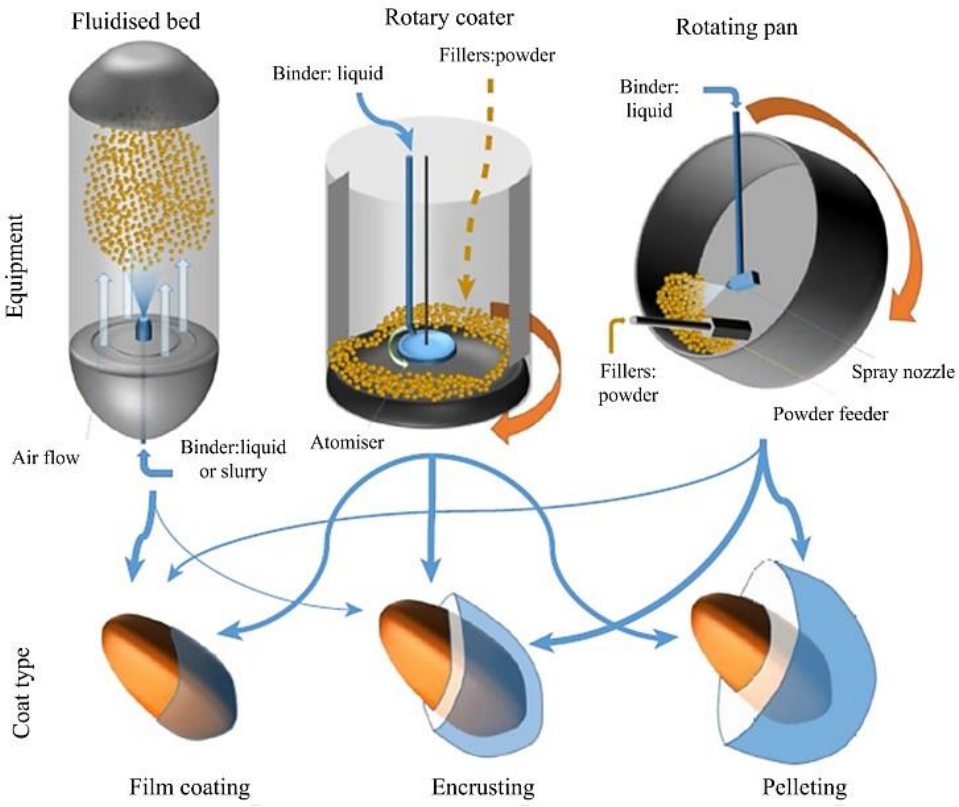



Figure 1. Seed coating equipment and coat type

The objective of coating is to deliver the seed in a form that is larger, rounder, smoother, heavier and more uniform than the original seed. Application of coating substance to the seed to enhance seed placement and performance without altering shape or placing chemicals on the seed coat which regulate and improve germination. Seed pelleting process is shown in figure 2.


Figure 2. Seed pelleting process

*Pelleting materials must be porous to allow movement of air to the seed. The coating must weaken or breakdown when it comes in contact with soil moisture to prevent any physical impedance to seed germination. Material used must not have any toxicity to the seed. It must be possible to apply the coating on commercial basis.*

*Adhesive materials:*

- *Binding materials used for maintaining perfect physical integrity of coating.*
- *The type of adhesive highly influences during handling, transport and planting operations of the pellets*

*Filler material:*

- *Filler materials for pelleting should be beneficial and harmless to both seed and the rhizosphere.*
- *The particle size is important for resistant coating on the seed material.*

*Fillers materials are clay, limestone, calcium carbonate, vermiculate and tamarind leaf powder. Adhesive materials are gum arabic, gelatin, methyl cellulose, polyvinyl alcohol and maida /starch gruel/*

*Our purpose is to coat and determine optimum rapeseed of coating materials of seeds by coating equipment with a mixture of wheat dusts and mineral fertilizers, organic fertilizers, bio char, zeolite as a filler compounds.*

*Application of coating substances to the seed to enhance seed placement and performance without altering shape or placing chemicals on the seed coat which regulate and improve germination [2]. We are used method of seed pellet in our experimental. It is the process of enclosing a seed with a small quantity of inert material just large enough to facilitate precision planting.*

*Steps in seed coating techniques: seed pelleting, adhesives, filler/bulk materials, active ingredients, pelleted seed. Advantages of seed pelleting: Increase in size, singling of seed by prevention of clogging, precision planting, attraction of moisture, supply of growth regulators, nutrients, stimulation of germination, influence of micro-environment, saving of chemicals fertilizers applied to soil, supply of oxygen, reduces seed rate, uniform field establishment, increase yield, remedy for sowing at problematic soils, protection from birds, animals and insects.*

## RESEARCH MATERIALS AND METHODOLOGY

Seed coating is covering seed surface by many materials to improve its growth, germination and also to be same shaped.

We have done our research by seed pelleting method. Developed countries widely use this method. They use adhesive compounds, bulk materials and activators to make seeds round, heavy, colorful, and easy to handling for this technology. Seed coatings are not developed in Mongolia. Results of research of seed coating for purpose of both industrial and scientific field in USA are shown in figure 3[10].

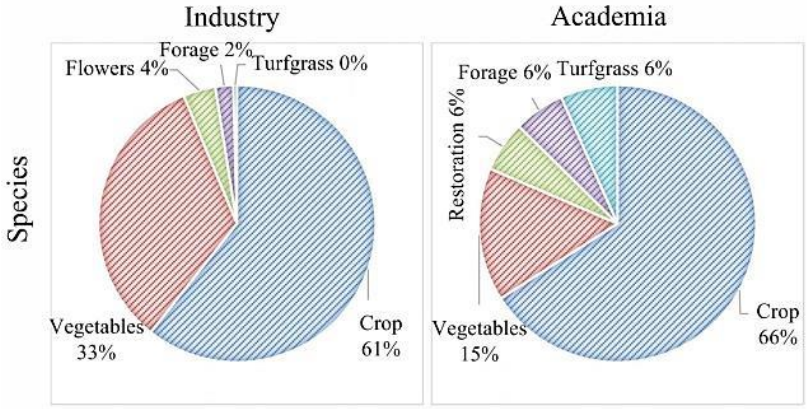
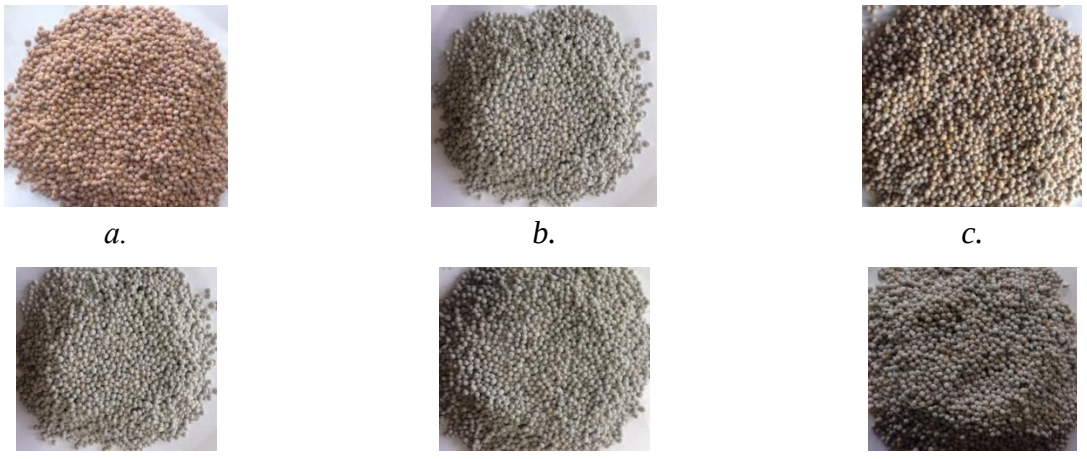



Figure 3. Results of research on usage of coated seeds

*Zeolite, mineral fertilizer, organic fertilizer and bio char are used as activated protector, wheat dust is used as bulk and adhesive agents to coat rapeseed seeds for our research. Seed coating equipment is shown at figure 4.*

*Figure 4. Seed coating equipment*

Rapeseeds are coated with each of mineral fertilizer, zeolite, organic fertilizer, bio char and also mixture of wheat dust and each of previous compounds by the coating equipment. Seeds were not coated by pure mineral fodder and pure organic fertilizer. Rapeseeds coated by rest of materials and the figure of coated seeds are shown at figure 5.



*a.* *b.* *c.*

*d.* *e.* *f.*

Figure 5. Coated rapeseeds with different materials. *(a-mineral fertilizer, b- zeolite, c- mineral fertilizer and wheat dust, d-zeolite and wheat dust, e-organic fertilizer and wheat dust, f-bio char and wheat dust*)

100g of rapeseed seeds were taken for each coatings and coated with materials after all rapeseeds get wet by water. Coated seeds weights are shown in figure 6, germination test results are shown at figure -8 and lengths of germinated seeds are shown at figure 8.

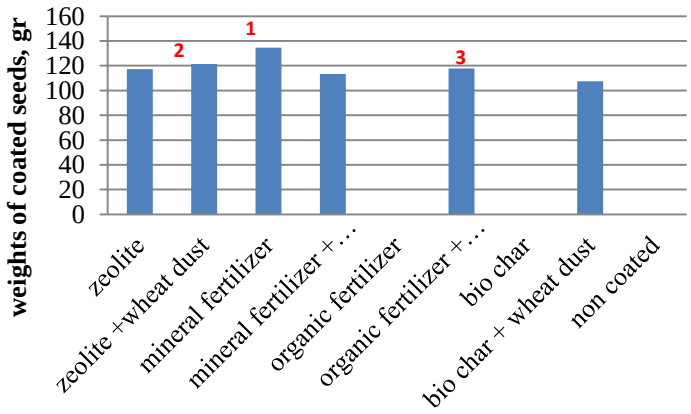
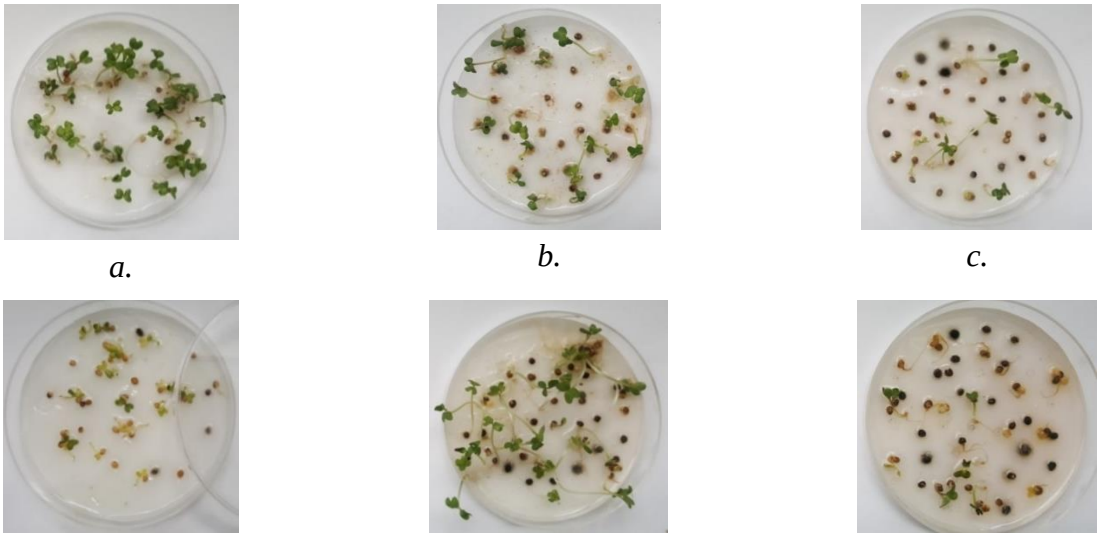



Figure 6. Weights of coated seeds



*a.* *b.* *c.*

*d.* *e.* *f.*

Figure 7. Germination after 8 days (*a-non coated, b-zeolite, c-zeolite and dust, d- mineral fertilizer and dust, e-organic fertilizer and dust, f- bio char and dust*)

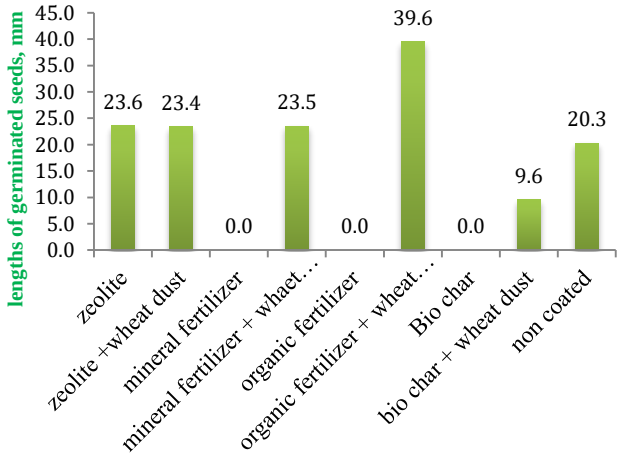



Figure 8. Lengths of germinated seeds

*Longest germination of seeds was from mixture of organic fertilizer and wheat dust. We have done 9 tests 5 times repeatedly on different ratio of organic fertilizer and wheat dust to determine most convenient ratio of coating materials (wheat dust and organic fertilizer ratio was 45g:5g, 40g:10g, 35g:25g, 30g:20g, 25g:25g, 20g:30g, 15g:35g, 10g:40g and 5g:45g). As shown in Figure 9, the number of germinated seeds is highest when the mixture ratio is 40:10, the germination rate is highest when the mixture ratio is 30:20, and the weight of the coated seeds is highest when the mixture ratio is 35:15. Between 35:15 or 2.33 and 25:25 or 1, the number of germinated seeds, the germination rate, and the weight of the coated seeds are relatively uniform.*

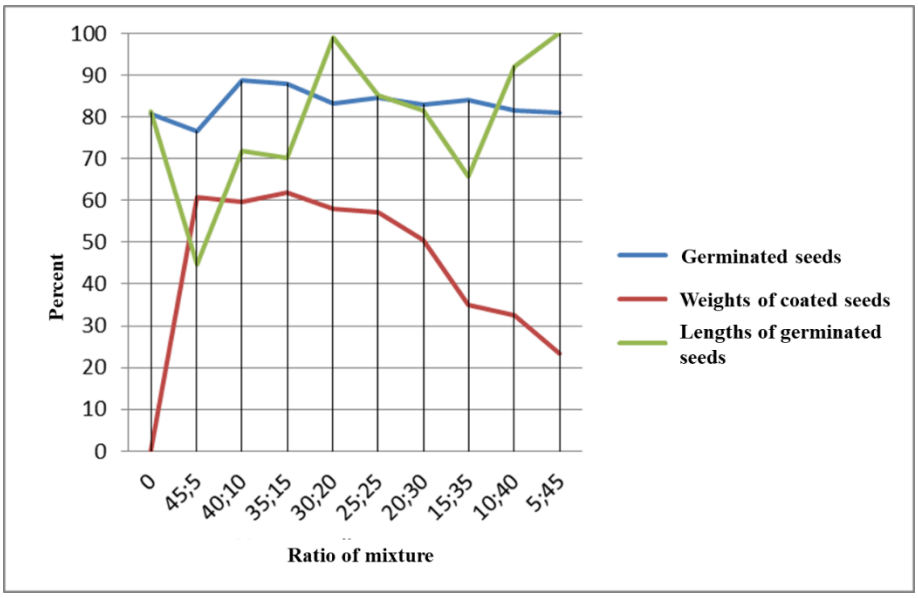



Figure 9. Convenient ratio of coating mixture for seed weight and germinated seeds

*Results of experiments on optimization of technological parameters of seed coating equipment.*

*The general design of the objectives of technological parameters of seed coating equipment was chosen as follows in Figure 10.*

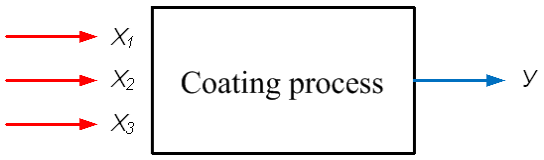



Figure 10. General design of the objective

Here: Input factors: $x_1$ – ratio of the mixture; $x_2$ – rotation frequency; $x_3$ – slope angle; outlet parameter: $y_1$ – weight of coated seed,

$$y=f(x_1, x_2, x_3) \rightarrow \max$$

Parameter levels that represent y-value are determined not only by the values of $X_{imax}, X_{imin}$, but by box planning or second-order rotatable planning with 3rd and 5th grade changes [12]. Optimum values of the inlet parameters are defined by the preliminary tests.

*The basic level of input factors was obtained by preliminary experiments, the ratio of the mixture was 1 to 2.3, value of the rotation frequency was 42 rpm, and value of the slope angle was $50^0$. At these values, the weight change, the main indicator of the quality of the coated seed, was the highest. Therefore, the values of the factors were taken as the base level for these values, and the values of the deviations from the base level were limited to a small range of changes and taken to the 5 levels shown in Table 1.*

Table 1. Experimental conditions

| EFFECTIVE PARAMETERS | CHANGED VALUES OF EFFECTIVE PARAMETERS | | | | | $J_i$ |
|---|---|---|---|---|---|---|
| | $-x_a$ | $x_{min}$ | $x_{i0}$ | $x_{imax}$ | $+x_a$ | |
| | **-1.682** | **-1** | **0** | **+1** | **+1.682** | |
| RATIO OF THE MIXTURE-$X_1$ | **0.659** | **1** | **1.5** | **2** | **2.341** | **0.5** |
| ROTATION FREQUENCY-$X_2$ [RPM] | **35.94** | **38.4** | **42** | **45.6** | **48.05** | **3.6** |
| SLOPE ANGLE, $X_3$ [GRAD] | **41.59** | **45** | **50** | **55** | **58.41** | **5** |

## RESULTS OF THE RESEARCH

The results of the seed coating equipment experiments were recorded and shown in Table 2.

Table 2. Experimental matrix and the results

| № | STANDARD MATRIX | | | EXPERIMENTAL MATRIX | | | OUTLET PARAMETERS | |
|---|---|---|---|---|---|---|---|---|
| | **INLET PARAMETERS** | | | **REAL VALUES OF INLET PARAMETERS** | | | | |
| | $x_1$ | $x_2$ | $x_3$ | $X_1$ | $X_2$ | $X_3$ | $y_1$ | $y_2$ |
| 1 | - | - | - | **1** | **6.4** | **35** | **228** | **227** |
| 2 | + | - | - | **2** | **6.4** | **35** | **230** | **229** |
| 3 | - | + | - | **1** | **7.6** | **35** | **229** | **227** |
| 4 | + | + | - | **2** | **7.6** | **35** | **225** | **223** |
| 5 | - | - | + | **1** | **6.4** | **45** | **228** | **227** |
| 6 | + | - | + | **2** | **6.4** | **45** | **230** | **229** |
| 7 | - | + | + | **1** | **7.6** | **45** | **225** | **221** |
| 8 | + | + | + | **2** | **7.6** | **45** | **223** | **219** |
| 9 | **-1.682** | **0** | **0** | **0.659** | **7** | **40** | **227** | **225** |
| 10 | **+1.682** | **0** | **0** | **2.341** | **7** | **40** | **234** | **230** |
| 11 | **0** | **-1.682** | **0** | **1.5** | **5.99** | **40** | **225** | **223** |
| 12 | **0** | **+1.682** | **0** | **1.5** | **8** | **40** | **227** | **224** |
| 13 | **0** | **0** | **-1.682** | **1.5** | **7** | **31.59** | **222** | **219** |
| 14 | **0** | **0** | **+1.682** | **1.5** | **7** | **48.41** | **227** | **228** |
| 15 | **0** | **0** | **0** | **1.5** | **7** | **40** | **229** | **228** |
| 16 | **0** | **0** | **0** | **1.5** | **7** | **40** | **230** | **229** |
| 17 | **0** | **0** | **0** | **1.5** | **7** | **40** | **228** | **230** |
| 18 | **0** | **0** | **0** | **1.5** | **7** | **40** | **231** | **228** |
| 19 | **0** | **0** | **0** | **1.5** | **7** | **40** | **229** | **227** |
| 20 | **0** | **0** | **0** | **1.5** | **7** | **40** | **230** | **231** |

The mathematical processing of the numerical values of the measurements was governed by the law of normal distribution, and the calculated value of the Shapiro and Wilka W criteria was $W_T$ = 325.59, which allowed the value in the table to be greater than $W_X$ = 0.96. The calculated value of the Cochrane criteria G, $G_T$ = 0.049 is less than that of the table, $G_X$ = 0.2705, indicating that the dispersion is homogeneous. Regression coefficients for factor dependence has been determined and a multivariate regression model (eq.1) for dependence has also been obtained.

$$y_1 = 229.18 + 1.39x_1 - 1.06x_1x_2 - 1.367x_2^2 - 1.19x_3^2 \quad (1)$$

*The assumption that the resulting model equation is similar is tested by Fisher's test, so our model proved to be similar.*

*We are determined the real model by putting these values in our model:*

$$x_1 = \frac{X_1 - 1.5}{0.5} \; ; \; x_2 = \frac{X_2 - 42}{3.6} \; ; x_3 = \frac{X_3 - 50}{5} \qquad (3)$$

*The equation takes real model following form.*

$$Y = -117.155 + \; 27.513X_1 + 9.744X_2 + 4.76X_3 \; - 0.589X_1X_2 - 0.105X_2^2 - 0.0476X_3^2 \qquad (4)$$

*To find the optimal value of the factors in the equation, we used the decomposition-step method, which finds the optimal value.*

$$Y_{max}(X_1, X_2, X_3) = \; 231.42 \; gr$$

*The values for this value are as follows:*

$$X_1 = 2, X_2 = 42rpm, X_3 = 50 \; degree$$

## CONCLUSION

1. 100g seed weight increased by 34.7% during coating by mineral fertilizer, 21.4% during coating by mixture of zeolite and wheat dust, 17.8% during coating by organic fertilizer and wheat dust, but seed weight did not increase during its coating by organic fertilizer and bio char, this means seeds were not able to be coated by organic fertilizer and bio char.
2. Germination of coated seeds were studied in this research. 30 coated seeds from different type of coating materials were chosen for this section. Germination of seed coated with organic fertilizer and wheat dust were longest to compare others. Its length was 39.6mm and it was 19.3mm longer than germination of uncoated seeds.
3. Seed germination test was done in 9 different coated (by wheat dust and organic fertilizer) seeds with 5 times repeatedly. Longest germination was 26.6mm when ratio of wheat dust and organic fertilizer was 40:10, heaviest coating of seed was 131g at ratio of wheat dust and organic fertilizer was 35:15. But at ratio of dust and organic fertilizer 40:10 weight of coated seed was 130g and length of its germination was 25.8mm. It shows that the most convenient ratio of wheat dust and organic fertilizer was 40:10 for both coating and germination.
4. Maximum number of germinated seed was 22.8 when ratio of wheat dust and organic fertilizer was 5:45, but most convenient ratio of wheat dust and organic fertilizer for number of germinated seed was 30:20 by germinating 22.6 seeds while seed weight gained to 128.26g.
5. Effects of technological parameters of seed coating equipment on seed coating were defined and optimum ratio of mixture determined as 2 (fodder: wheat dust = 1:2) cylinder rotation speed of device was 42rpm and slope angel of pan was 50 degree.

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# IMPACTS OF COVID-19 PANDEMIC ON POSTSECONDARY STUDENTS' EMPLOYMENT AND FINANCIAL SITUATION IN CANADA

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**Abstract.** The purpose of this research is to analyze the distressing impacts of the Covid-19 pandemic on the postsecondary students' employment status and their financial security. Public use microdata gathered by the Statistics Canada from April 19, 2020, to May 1, 2020, on the crowdsourcing basis was used in conducting this analysis. The findings of the research show that postsecondary students' employment status varies depending on the student's program level and the difficulty in paying the tuition differs depending on the students' employment status.

**Keywords:** COVID-19, Postsecondary students, Financial Situation, Canada

## INTRODUCTION

The world entered the year 2020 with the discovery of a new novel coronavirus that was detected in Wuhan, China. Relatively high infection rate, serious health consequences, no known cure and no immunization against the virus led the World Health Organization (WHO) to officially declare a pandemic on March 11, 2020. Following WHO's announcement many schools, colleges and universities had moved to online and remote teaching. An unprecedented sudden move to online learning had an inconceivable impact on postsecondary students.

In this research, I will dive deep into the employment issues that postsecondary students have faced during the beginning of the pandemic. I will be using public use microdata from an online crowdsourcing done by the Statistics Canada (Statistics Canada, 2020). The survey targets all students attending any postsecondary institutions in Canada as of March 1st, 2020. A total of 101,974 students have participated in voluntary crowdsourcing via a self-administered online questionnaire.

In this paper, I will argue that in the context of the early phase of the pandemic postsecondary students' employment situation varied depending on the students' enrolled program and the change in the employment status affected the students' ability to pay their university or college tuition fees for the next term.

## LITERATURE REVIEW

Severe government regulations to stop the spread of Covid-19 had a significant impact on economic contraction not only in Canada but throughout the world. The start of the pandemic was not smooth, leading to a 2020 stock market crash, inflation, increased unemployment and poverty rates. One of the most impacted industries by the new novel coronavirus was secondary and post-secondary education. For the first time in history, students started having online classes, without stepping outside of the house. Dozens of studies were done on the pandemic's impact on students' academic, mental, and physical well-being as well as on financial situations.

Research on the pandemic's financial impact on postsecondary students, conducted by Statistics Canada in the first half of 2020, states that the financial burden was one of the main issues for postsecondary students after the Covid-19 breakout. (Wall, 2020) Working summer jobs or during their studies was a major source of income for the students to cover their tuition and living expenses, however, the employment rate fell by 23.6% in April 2020, from 52.5% in February 2020. 70% of surveyed postsecondary students were extremely concerned about the financial impact of the pandemic, where 61% being anxious about using up their savings. Nearly half of the students were worried about their debt load and ability to cover current expenses and the tuition. In response, the government of Canada announced the Canada Emergency Student Benefit (CESB) to provide financial support specifically to students struggling financially. Study shows that the Covid-19 outbreak lead to substantial distress regarding financial security among college and university students.

A similar study on Covid-19 impact was done in neighboring United States on 18-22 aged full-time college students to examine students' Covid-19 related experiences and their perceived impacts. (Cohen, Hoyt, & Dull, 2020) Although the economic impact on students' lives was only a small portion of the study, the research shows that the participants who received financial aid to help with the financial burden were more concerned about Covid-19's economic and emotional impacts on their lives than those who did not get any help. Unlike Canadian students, the majority of participants were concerned more about the pandemic's implications for the American society and their families rather than Covid-19 impacts on their lives. However, it is important to note that the conclusions cannot be drawn from the above observation, as both studies were done differently in their approach and in contexts. The employment rate's decrease among American college students was consistent with the decrease in employment of Canadian postgraduate students. However, 8.3% of students who were not employed in February, at the beginning of the survey, got themselves a job in late April. The phenomenon can be explained by the financial need that students started to face during the pandemic, leading them to take on gig works as food delivery. Despite, the decline in the employment rate,

college students were relatively optimistic about their financial situation. Conceivably, most of the college students aged 18-22 in the US were financially well-off, while those in need of external funding were more worried about themselves. However, the findings can be different for undergraduate and postgraduate students that was not part of the above research.

A study conducted by Statistics Canada on future predicted earnings from graduating during Covid-19 demonstrates that poor labour market conditions in students' early work careers can negatively affect their predicted earnings for many years. (Messacar, Handler, & Frenette, 2021) The study proves the general trend of diminishing prospects in employment during pandemic as mentioned in two previous studies. However, more importantly, the research found that a 1 percent increase in unemployment at the time of graduation leads to a 1.5-4 percent decrease on average in the amount they would have earned during a stable economy and estimated that those who graduated in 2021 will likely lose 5-12 percent of their future earnings they would have earned if the pandemic had not occurred. The findings of the above research correlate the future financial loss with the present unfavourable employment situation.

Another narrative review on the influence of Covid-19 on stress, substance use and mental health among postsecondary students was done on a global scale. (Patterson, Gabrys, & Prowse, 2021) The paper argues that various social and economic impacts of the Covid-19 pandemic have disproportionally affected the mental health of emerging adults, including post-secondary students. Among other variables, economic stressor was one of the significant stressors of mental well-being. A survey conducted by the Organization for Economic Cooperation and Development (OECD) on 90 youth-led organizations representing 48 countries around the world, concluded that the employment of emerging adults was greatly affected by the Covid-19 regulations and lockdowns. Economic insecurity in post-secondary students around the world followed a similar trend as students in Canada: 35% of students encountered a cancellation or delay in work, 58% of participants reported that they were extremely concerned about losing their jobs and 67% of surveyed had fears of having no future job prospects. Due to the public health measures in response to novel coronavirus, unemployment levels reach rates as high as 20-25% in some countries. Therefore, uncertainty regarding students' future employment and interruption in income had increased the risk of poor mental health among post-secondary students around the world.

## METHODS

In this section, I will describe the dataset that was used in this research as well as the tests that were conducted. The study uses Statistics Canada's public use microdata file (PUMF) on the Impacts of the Covid-19 Pandemic on Postsecondary Students (ICPPS) that was done through a crowdsourcing application. Students were asked several questions regarding their academic future and the financial distress as a result of the pandemic. I will be using the results of the three specific questions: the type of the postsecondary program enrolled in, the change in the employment situation and whether have difficulty paying the tuition for the next term. Data collection was done from April 19, 2020, to May 1, 2020. A total of 101,974 postsecondary students participated in the questionnaire, however, in the context of the research, I will be using the sample of 98,887 students excluding postsecondary students enrolled in an unknown (other) program.

One-way ANOVA test was carried out to determine the statistical significance between postsecondary students' education level and change in their employment status. Afterwards, the Post Hoc analysis was done to compare different postsecondary programs with each other. Results from the Post Hoc test supported that the education level has an effect on employment status change. Therefore, to determine the optimal number of subsets, the Homogenous Subset was reviewed. The Scheffe test was conducted as a study involved different number of surveyors from different levels of education. And lastly, used T-test to determine whether a change of employment (not working or losing a job) has influenced the student's ability to pay the tuition for the next term.

**FINDINGS**

The following three figures illustrates the results of the three specific questions from PUMF that was used in this research paper.

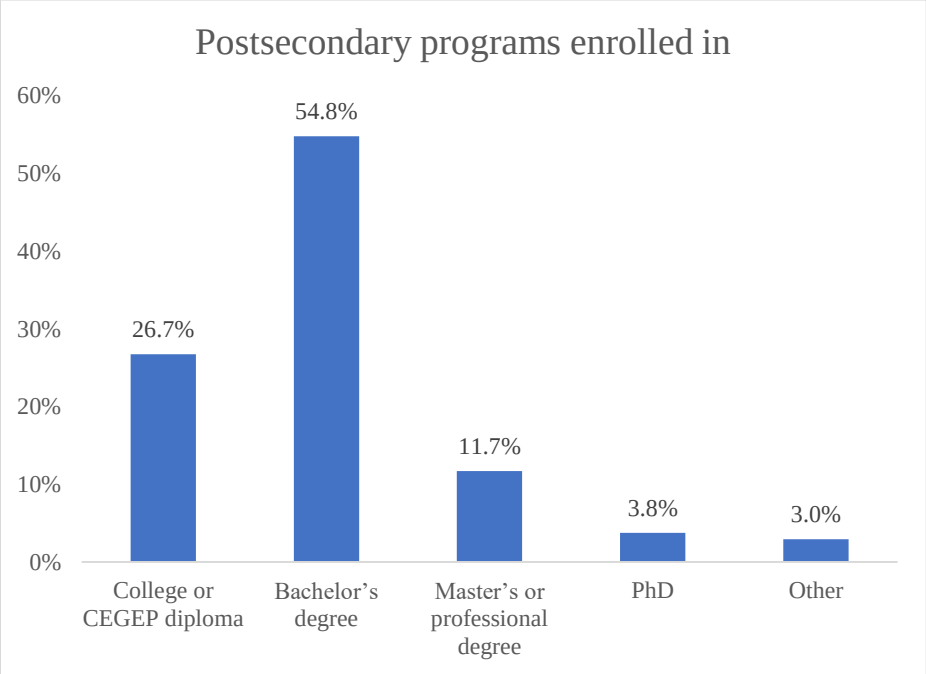


Figure 1. Postsecondary programs enrolled in

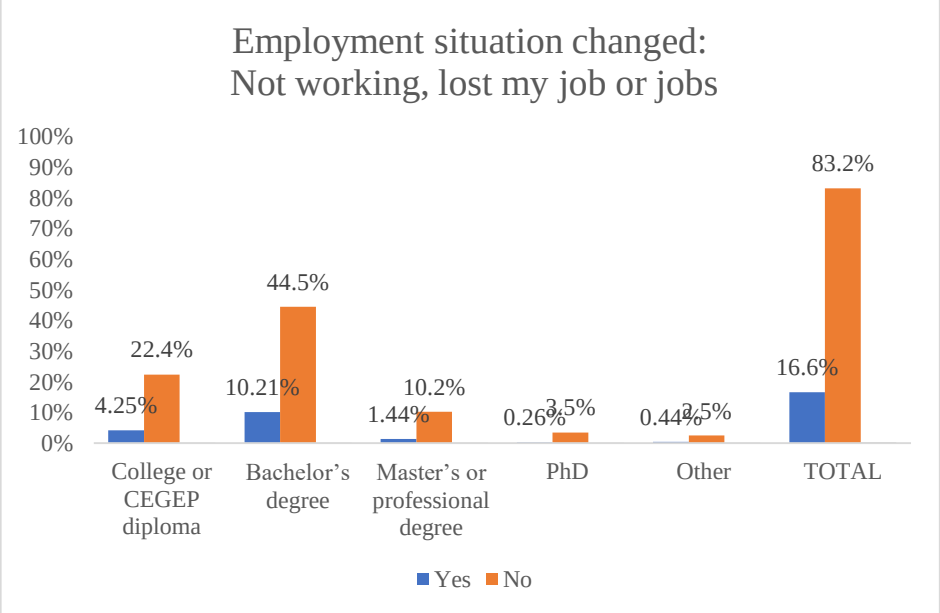


Figure 2. Employment situation change

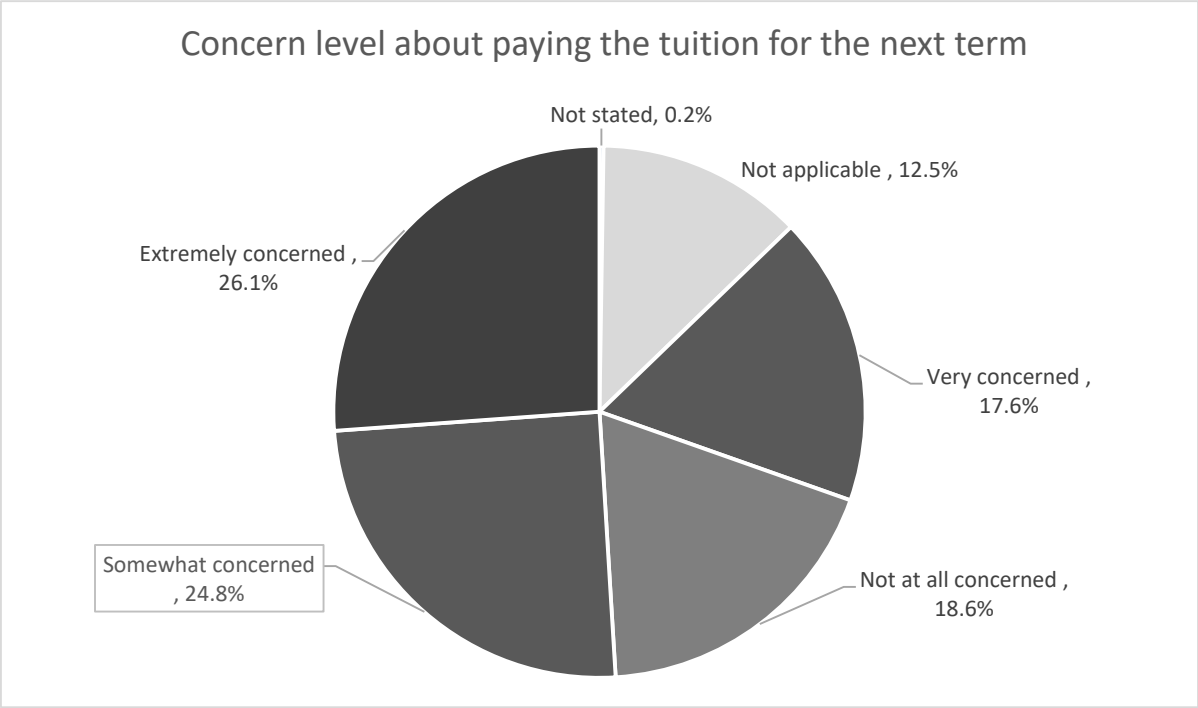


Figure 3. Concern level

The tables 1-3 show the results of the tests that was conducted in order to prove the relationship between education level and the change in students' employment situation.

**ANOVA**

**H1:** Change in employment situation differs depending on the education program enrolled in, ceteris paribus.

Table 1

| | | N | Mean | Std. Deviation | F | P |
|---|---|---|---|---|---|---|
| Employment situation changed (Not working, lost my job or jobs) | College or CEGEP DIPLOMA | 27251 | 1.859 | .5165 | 118.350 | .000 |
| | Bachelor's degree | 55841 | 1.828 | .5049 | | |
| | Master's or professional degree | 11939 | 1.895 | .4889 | | |
| | Ph.D | 3856 | 1.946 | .4095 | | |
| | **Total** | **98887** | **1.849** | **.5037** | | |

**Post Hoc**

**H1:** Employment situation differs depending on each education program enrolled in, ceteris paribus.

Table 2

**Multiple Comparisons**

| Education Level | | Mean Difference | Std. Error | Sig. |
|---|---|---|---|---|
| Ph.D | College or CEGEP diploma | 0.086* | 0.0089 | 0.000 |
| | Bachelor's degree | 0.118* | 0.008 | 0.000 |
| | Master's or professional degree | 0.050* | 0.009 | 0.000 |
| Master's degree | College or CEGEP diploma | 0.195 | 0.010 | 0.000 |
| | Bachelor's degree | 0.147 | 0.009 | 0.000 |
| Bachelor's degree | College or CEGEP diploma | 0.48 | 0.007 | 0.000 |

*Note. The mean difference is significant at the 0.05 level.*

**Homogeneous Subsets**

Table 3

| EDUCATION LEVEL | N | Subset for alpha = 0.05 | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| College or CEGEP DIPLOMA | 55841 | 1.828 | | | |
| Bachelor's degree | 27251 | | 1.859 | | |
| Master's or professional degree | 11939 | | | 1.895 | |
| Ph.D | 3856 | | | | 1.946 |

**T-test**

The table 4 shows the results of the T-test that was done to examine the impact of a student's employment situation change in the difficulty to pay the tuition for the next term.

**H1:** Difficulty in paying tuition differs for postsecondary students who didn't lose a job and who lost a job, ceteris paribus.

Table 4

| | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
|---|---|---|---|---|---|---|---|
| | | | | | | Lower | Upper |
| IMP_05B | 36.673 | 86174 | .000 | .3703 | .0101 | .3506 | .3901 |

*Note. IMP_05B is the variable name of the question in PUMF*

## DISCUSSION

In this section, I will discuss the results of the statistical analysis and tests and explain the findings of these analyses.

Statistics Canada surveyed 101,974 participants, who deemed to be in-scope postsecondary students. Figure 1 shows the percentage of each postsecondary program in regard to the total number of participants. Almost half of the surveyed, 54.8%, were undergraduate students doing bachelor's degree. 26.7% of the total participants of the questionnaire were in college or CEGEP program. Only 3% did not state the specific program they have enrolled in. While the number of students doing Ph. D was significantly small equalling 3.8%, and those who were in masters, or another professional program were around 12%. In the further analysis, I will be excluding the postsecondary students with an unknown program that makes up the 3% of the total participants to have complete clarity about the education level. Moreover, this research only shows the impact of the early stage of the Covid-19 pandemic on postsecondary students' employment and financial situation.

From figure 2, we can see the change in the employment situation, whether the students lost their job or stopped working due to the Covid-19. It is surprising to see that 83.2% of all participants had no change in their employment, a contradicting result from what other researchers and government officials were predicting. From the results of the questionnaire, we can see that the unemployment rate increased by 16.6% between March and April 2020. However, according to Statistics Canada, the employment rate among students aged 20 to 24 fell by a staggering 23.6 percentage points, from 52.5 to 28.9 percent, between February and April 2020 (Studiosity & Angus Reid Forum, 2021). These differing results come from the fact that the ICPPS survey was done on a voluntary basis, where members of the population who wish to be a part of the survey provide their data. This means data are not collected under a sample design and lack a probability-based sample. (Statistics Canada, 2020) In addition, Statistics Canada had specified the age gap for the official unemployment rate, excluding number of students aged above 24.

In figure 2, only 16.6% of the students had a change in their employment, thus lost their job due to the pandemic, where the majority of them, 62%, were students in bachelor's program. However, when we analyse students who had no change in their employment situation, the ratio seems to differ, only 53% of the students were bachelor students. From this observation, we can see that depending on the program level, change in the employment situation differs, though further analysis is required to come to an official conclusion.

The last question that we used in our research was the concern level that postsecondary students had when it comes to paying tuition fees for the upcoming term. The results may be obvious. Most of the participants were concerned to some extent about their ability to pay the tuition fee. Research paper "The Influence of COVID-19 on Stress, Substance Use, and Mental Health Among Postsecondary Students" shows that one of the main stressors for the postsecondary students were the economic stressor; students' perception of their economic and financial well-being impacted their mental health to a greater extent compared to the pre-pandemic times (Patterson, Gabrys, & Prowse, 2021). In figure 3, 26.1% of all participants were extremely concerned and 17.6% were very concerned, while 18.6% were not concerned at all. Around one-fourth of the postgraduate students were between concerned and not concerned. Moreover, 12.5% stated that the question was not applicable, these students may have been studying completely free of charge or on a full-ride scholarship.

Research papers that were discussed in the literature review section were not taking into consideration the education levels and programs that postsecondary students were enrolled in, instead, all the research were focusing on certain demographics such as age (e.g., 18-24) or level of higher institution (e.g., college, university; no specification regarding program level). However, early research shows that higher education level in individuals leads to a lower unemployment rate in the economy (Mincer, 1991); therefore, students enrolled in postgraduate programs will have less unemployment rate, and more stable employment compared to undergraduate, college students (college or CEGEP diploma and bachelor's degree) and I believe, these findings will serve a crucial part in conducting researches that focuses policy proposals and recommendations. In order to test if the theory is consistent during

unprecedented economic phenomenon, such as the Covid-19 pandemic (using ICPPS PUMF), I am suggesting the hypothesis:

*H1: Change in an employment situation differs depending on the education program enrolled in,* ceteris paribus.

*H1: Employment situation differs depending on* ***each*** *education program enrolled in,* ceteris paribus.

One-way ANOVA test was carried out to determine the relationship between postsecondary program students enrolled in and change of their employment situation (losing a job) (Glen, n.d.). Results ($F = 118.350$ ($p=0.000$)) show that in a general postsecondary program that students were enrolled in had impact on employment situation change. We don't know yet which program had an impact on the employment change. Therefore, we will be doing another test to find the specific programs that affected the loss of the job.

Because p-value of the ANOVA was statistically significant Post Hoc test was conducted to compare different postsecondary programs with each other (Zach, 2021) Results show that $p=0.000$ statistically significant and each postsecondary program student enrolled in had a different impact on the employment situation change.

Results from Post Hoc test support that education level has an effect on the change of the employment status. Therefore, to determine the optimal number of subsets, Homogenous Subset was reviewed and concluded that analysis can be done in terms of 4 subsets, all education levels that were surveyed in ICPPS: College or CEGEP diploma, Bachelor's degree, Master's or professional degree, Ph. D. Scheffe test was carried out as study involved a different number of participants from different levels of education.

One obvious assumption based on the above two hypotheses would be increased difficulty in paying the future tuition due to the change in the employment situation. Therefore, in order to prove the above assumption, I suggest the third hypothesis:

*H1: Difficulty in paying tuition differs for postsecondary students who didn't lose a job and who lost a job, ceteris paribus.*

T-test was conducted to test our last hypothesis to determine whether change of employment, specifically not working or losing a job, had influence on difficulty paying the tuition for the next term. The results from the t-test, $t=36.673$ ($p=0.000$) are statistically significant, which indicates that postsecondary students who have lost a job have difficulty paying for tuition.

Above analysis supports all three hypotheses that were suggested in this paper.

## CONCLUSION

The outbreak of the Covid-19 and the economic lockdowns across Canada to stop the spread of the virus and to protect public health have resulted in several challenges for the Canadian economy and society. The education industry was one of the most affected industries by the Covid-19 pandemic. This paper, by using the public use microdata on the impact of the Covid-19 pandemic on postsecondary students, showed how a change in students' employment status differs depending on the education program they enrolled in, as well as how a change in the employment situation affects the students' ability to pay their future tuition fee and the level of concern associated with the financial insecurity.

The voluntary-based crowdsourcing of the data used in the research, makes it hard to draw conclusions regarding the whole population. However, the general trends and conclusions of this research should be consistent with the population, as the data size used in the research was relatively big.

The analysis in the research has supported all three hypotheses that were suggested in the paper, showing there is clear evidence that the postsecondary students' employment status changed

depending on the student's program choice in the early phase of the pandemic. Moreover, the difficulty in paying the tuition differed depending on the employment status.

Further research can be done based on the students' living arrangements, whether living in the dorm rooms or in rented apartments with roommates or alone has an impact on a student's ability to pay tuition fee.

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# THE ISSUE OF TAXATION IN THE DIGITAL ECONOMY

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**Abstract.** Digital economics is an economy based on digital computing technology that solves old problems using new technologies, leading to the 4th industrial revolution with faster, more accessible, and low-cost business models than traditional economies.

With the help of technology, companies without a physical or legal presence can participate in the economy of a country, provide services to consumers remotely, earn income, and create a modern value system that has outdated territorial principles of traditional tax systems and emerged a new value based tax concept to impose taxes in a market or a region where the values are generated.

In the context of the international taxation of the digital economy, the research documents related to the implementation of Program 1 of the BEPS project this report aims to study in terms of tax-disruptive digital economy business classification, transaction elements, tax principles and taxation activities.

**Keywords:** Digital Economy, Digital Economy Taxation, Pillar One and Pillar Two

## THE DIGITAL ELEMENT OF ECONOMIC TRANSACTIONS

The digital economy is an economy based on digital computing technology, and people understand it as doing business using the internet and global network-based markets.[6]

To define a digital economy, it is important to understand the elements of economic transactions associated with the use of digital technology.[7] Depending on the presence of such tax-disruptive digital elements, it is important to classify digital transactions and digital business models for tax purposes. Focusing on the category of tax-disruptive digital business models is to understand how they differ from traditional business models and what the tax challenges are.

Anything that uses data encryption technology is called digital, which allows data to be transmitted in real time around the world. Any element of an economic transaction based on this data encryption technology is considered a digital element. Similarly, any business model that contains one economic transaction, and further one or more digital elements (digital communications, digital content, digital automation, digital distribution, digital payments), is considered one of the digital economic transactions.

Digital elements, such as digital content, digital distribution, and digital automation, are classified as tax-disruptive digital business models because they work collectively. For example, digital content can only be delivered online via digital distribution, and the delivery and access to digital content is often automated by digitalization. In addition, digital distribution uses the internet as a channel of transmission, which acts as an element of digital communication.

[6] Some Precepts of the Digital Economy. *Productivity, Innovation & Technology eJournal.* Social Science ResearchNetwork (SSRN). Accessed 27 January 2020.

[7] Cristian Óliver Lucas-Mas and Raúl Félix Junquera-Varela. Tax Theory Applied to the Digital Economy: A Proposal fora Digital Data Tax and a Global Internet Tax Agency. World Bank Group

Table 1 illustrates the relationship between economic transaction classifications, business models, and types of digital elements. (✓ dependent)

Table 1. Digital elements of economic transactions

| Categories of transactions and their business models | Digital elements present | | | | |
|---|---|---|---|---|---|
| | Communication | Content | Automation | Distribution | Payment |
| **Traditional transactions and business models** | | | | | |
| In-person transactions involving physical supply of goods and services paid using a physical payment method (babysitters, street vendors, flea markets, cash sales) | X | X | X | X | X |
| **Digital transactions and business models** | | | | | |
| In-person transactions involving the physical supply of goods and services paid using digital payment methods (credit card sales, online utility bill payments) | X | X | X | X | ✓ |
| Online transactions involving the physical supply of goods and services paid using a physical payment method (free posting sites for classified advertisements, like Craigslist; websites of physical retail stores to reserve goods online) | ✓ | X | X | X | X |
| Online transactions involving the physical supply of goods and services paid using a digital payment method (online marketplaces, like Amazon or eBay; online ride-hailing services, like Uber; online food delivery services, like Uber Eats; online booking of hotels, like Marriott; online stores of physical retail stores, like Zara) | ✓ | X | X | X | ✓ |
| **Tax-disruptive digital transactions and business models** | | | | | |
| Online transactions involving online supply of digital content, digitally automated and digitally distributed, paid using digital payment methods (online marketplaces, like Amazon; online retailers of digital content, like Apple iTunes Store or Amazon Kindle Store; digital distribution platforms, like Microsoft Store; digital media services, like Netflix or Spotify; web search engines, like Google) | ✓ | ✓ | ✓ | ✓ | ✓ |

*Source: Cristian Óliver Lucas-Mas and Raúl Félix Junquera-Varela. Tax Theory Applied to the Digital Economy: A Proposal for a Digital Data Tax and a Global Internet Tax Agency. World Bank Group P21.*

From a tax perspective, all costs incurred in obtaining and processing such digital inputs (free delivery of digital content, development of technical platforms, automation technology) should be taken into account in determining taxable transaction revenue.

Table 2 shows a comprehensive classification of tax-disruptive digital business models. Internet companies often develop and implement several business operations simultaneously in different business models.

Table 2. Classification of digital business models that lose tax revenue

| | Type of tax-disruptive digital business model (and examples) | Digital transactions (by the same taxpayer) to monetize a business idea and get user input |
|---|---|---|
| **Content-related** | | |
| 1 | Sale of non-user digital content (Kindle Store, Apple iTunes Store) | 1.1. Online sales of digital content digitally automated and digitally distributed for a price |
| 2 | Licensing of nonuser digital content (Microsoft, IBM, Cisco, Oracle) | 2.1. Online licensing to use digital content (software end user license) for license fee |
| 3 | Subscription to nonuser digital content (Netflix, Spotify, Amazon Prime) | 3.1. Online subscription to access digital content and other benefits for a subscription fee |
| **Regulated activities** | | |
| 4 | Virtual banking (First Direct, ING Direct, Revolut) | 4.1. Internet-only bank offering retail banking services remotely via digital channels |
| 5 | Virtual insurance (ZhongAn, Bowtie Insurance) | 5.1. Internet-only insurance company offering retail insurance services via digital channels |
| 6 | Online gambling (Bet365, Bwin, Betfair, 888) | 6.1. Online gambling and betting activities directly between the user and the website |
| **Multisided platforms** | | |
| 7 | Online e-commerce marketplace (Amazon, Uber, Airbnb, Booking, eBay, Alibaba, Tencent, Expedia, crowdfunding platform, online poker) | 7.1. Free online access to multisided platforms<br>7.2. The digital platform operator acting as a broker and charging a transactional fee for each trade executed between users of the digital platform |
| **User-related** | | |
| 8 | Sale of user-related data and user-contributed digital content (Facebook, Instagram, Twitter) | 8.1. Online access to digital content in exchange for legal right to sell user data and content<br>8.2. Sale of user-related data and digital content |
| 9 | Online user-targeted advertising (Google Ads, Amazon, LinkedIn, Alibaba, YouTube, Facebook, Reddit) | 9.1. Online access to digital content in exchange for legal rights to exploit user data and content<br>9.2. Sale of online user-targeted advertising |
| 10 | Sale of user-related goodwill as part of the sale of a digital business (exit strategies) (Instagram, LinkedIn, WhatsApp, Skype, Waze, YouTube, Fitbit) | 10.1. Online access to digital contentin exchange for legal rights to benefit from user base, user-related data, and user-created digital content<br>10.2. Sales of digital business (exit) whose value is enhanced by user-related goodwill |

*Source: Cristian Óliver Lucas-Mas and Raúl Félix Junquera-Varela. Tax Theory Applied to the Digital Economy: A Proposal for a Digital Data Tax and a Global Internet Tax Agency. World Bank Group P22-23.*

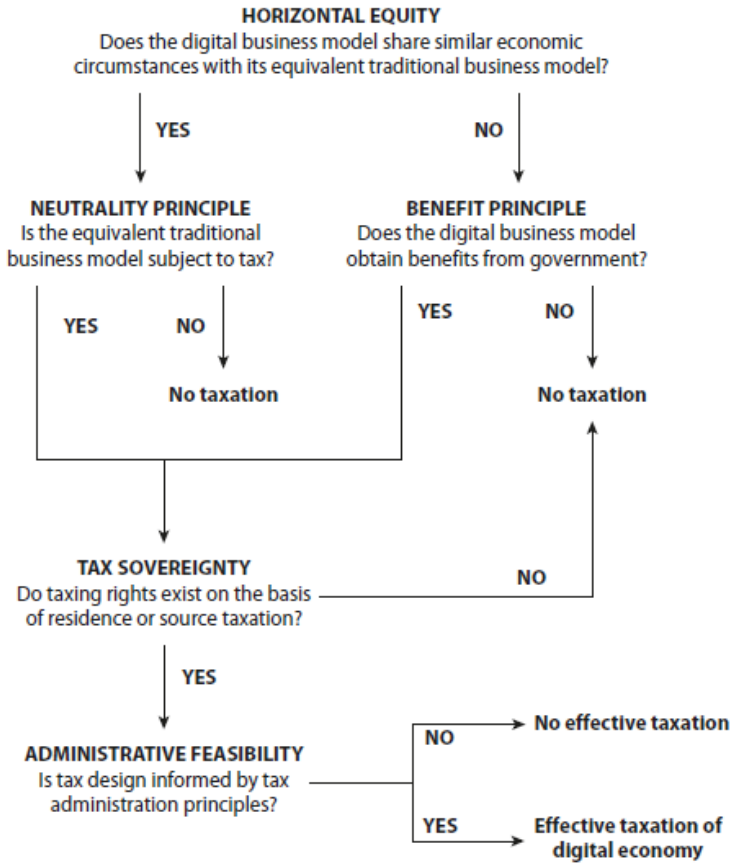
Recognizing the digital elements of economic transactions can help identify a tax-disruptive scope and define a policy to get them taxed.

## PRINCIPLES OF TAXATION IN THE DIGITAL ECONOMY

Tax principles have traditionally guided the development of the tax system. Not all tax principles have the same impact on the digital economy tax as in the traditional economy. For example, while the principle of vertical equality is more suitable for personal income tax, the object of taxation in the digital economy is unsuitable because center of a tax object is a business. Tax principles that directly affect the taxation of the digital economy are analyzed below.[38]

The use of digital technology has allowed for the creation of new business models that differ from traditional business models, and the same principles do not apply hence the impact of digital elements is not the same as traditional business. The map below summarizes the interaction of tax principles applied to a digital business model that has the effect of disrupting tax revenue.

**Figure 3.1 Interaction of Tax Principles as Applied to Digital Business Models**




*Source:* Original figure for this publication.

*Source: Cristian Óliver Lucas-Mas and Raúl Félix Junquera-Varela. Tax Theory Applied to the Digital Economy: A Proposal for a Digital Data Tax and a Global Internet Tax Agency. World Bank Group P44.*

As the digital economy becomes more and more economic in nature, it is difficult and impossible to separate digital economy from other economies for tax purposes. It is agreed that the digital economy and its business models can be viewed from a tax perspective and have important taxable properties.[9][10]

The tax should be imposed on the digital business the same as on the traditional business. Join the principle that the digital business model should not be taxed unless the traditional business model is taxed.

If business models do not share a similar economic situation, the traditional business model should not be used as a benchmark for determining the tax on the digital business model, and the appropriate

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principle should be used to assess whether the government is benefiting. In the absence of return, it is stated that no tax should be levied on the basis of tax authority except at the time of residence tax.[7]

## TAX MEASURES FOR THE DIGITAL ECONOMY (OECD, EU)

*Inclusive Framework, Pillar One and Pillar Two suggestions*

New rules have been set for the allocation of profits to certain businesses. Profits are allocated according to simplified and formulated principles, which include the basic return on distribution and marketing functions, as well as the percentage of the group's total residual profit.

*Withholding of tax from digital service income*

It applies tax withholding (or collection mechanisms) when paying for digital services to non-residents. Withholding taxes already familiar items such as royalties, interest and dividend payments.

*Digital Representative Office*

This gives countries the right to tax non-resident businesses in a way that is sustainable and interconnected with the economy under their jurisdiction. This method applies even if you do not run a business in that area. For example, a business is considered taxable if it has sufficient sales or customer involvement within its jurisdiction.

*Digital Service Tax (DST)*

It seeks to impose a direct tax on businesses that generate revenue from certain digital services, such as online advertising and brokerage services. Some countries attempt to tax the income earned by digital service providers on payments made directly or indirectly by consumers or residents. Revenues from global digital services are allocated based on the number of users, views (advertising services) or transactions (brokerage services) according to their direct affiliation. The international practice of implementing digital service tax is shown in the table below.

Table 3. International practice of taxation of digital services

| | Country | Tax | Tax % | Services | Threshold of local income | Effective date |
|---|---|---|---|---|---|---|
| 1 | Европын холбоо | Digital Service Tax (DST) | 3% | Advertising<br>Online sales<br>Sale of user data | €50 million | Төсөл |
| 2 | United Kingdom | Digital Service Tax (DST) | 2% | Social media<br>Search engine<br>Online sales | £25 million | 2020 |
| 3 | India | Equalizationlevy | 6% | Advertising<br>Online sales | $284,000 | 2016 |
| 4 | Indonesia | Electronic TransactionTax | 10% | Online sales | $40,000 | 020 |
| 5 | Vietnam | VAT | 10% | Online sales | - | 2020 |
| 6 | Nigeria | WHT | - | Digital content<br>Data transfer<br>Online sales | $60,000 | 2020 |

*Source: E.Munkh-Uyanga, TMC Digital Economic Taxation, Pillars One and Two, Lecture, 7 January 2022*

## TAXATION OF THE DIGITAL ECONOMY

In 1998, at the Ottawa Ministerial Conference entitled “A Borderless World: Realizing the Potential of Electronic Commerce,” the Taxation Framework Conditions published by the Organisation for Economic Co-operation and Development (OECD) were endorsed by member countries and nonmember economies as well as by the business community (OECD 1998). On the one hand, this document provided the principles that should guide governments in their approach to the taxation of e-commerce, stating that e-commerce should be treated in a similar way to traditional commerce and

emphasizing the need to avoid any discriminatory treatment, in compliance with the neutrality principle.

In 2001, the OECD narrowed the focus in the area of direct taxation on key issues such as the application of the tax treaty concepts to e-commerce and the allocation of income to a permanent establishment involved in e-commerce transactions.[11]

The development and dissemination of digital technology has facilitated wave of digitalization in the global economy, drastically changing our daily lives, affecting the well-being of society, and requiring changes in the legal and regulatory regimes that have been in place for many years. Among them, the international policy of taxing corporate income needs to change. Tax authorities around the world have made it almost impossible to tax the profits of digital companies in their territories without their physical involvement. Bilateral tax treaties negotiating traditional trade did not address this digital tax problem.[12]

It has also become clear that multinational corporations are exploiting loopholes in the interaction of different tax systems to artificially reduce taxable income by exploiting their economic activities with tax-disruptive or low-jurisdiction. In response, at the request of the G20, the OECD announced in July 2013 a plan to implement measures in 15 programs to comprehensively address BEPS (OECD, 2013).[13]

These 15 action plans are based on three main pillars.

- Improve coherence of internal regulations affecting cross-border activities
- Tighten the nature requirements to link taxes to the location of economic activity and value creation.
- Improving business and government transparency and assurance.

The Digital Economy Tax Challenge Program 1 report was released in October 2015 and acknowledged that digitalization and some business models pose significant challenges to international taxation.

In 2018, the European Union proposed a tax on digital services. A one-sided digital service tax has been proposed in several countries, and countries have enacted laws

In 2020, the OECD presented Pillar One and Pillar Two plans.

In 2021, the US government reversed its political stance, and the United Nations presented its proposal.[14]

**OECD proposal:**

- Incorporate a consensus solution to the tax crisis produced by the digitalization of the economy into the BEPS work program - 28/29 May 2019
- BEPS Program1, Addressing the tax challenges of the digital economy
- Pillar One - Changes in Profit Allocation and Nexus
- Pillar Two - Proposals against the decline in the global tax base
- Representative Office - What could be "economically significant"?
- Digital product transfer pricing agreement

One-sided action - Independent policy United Nation’s proposal:

- The United Nations has proposed to tax digital services
- New article to be included in the UN Model Tax Convention (Article 12b)

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11 Cristian Óliver Lucas-Mas and Raúl Félix Junquera-Varela. Tax Theory Applied to the Digital Economy: A Proposal for a Digital Data Tax and a Global Internet Tax Agency. World Bank Group P4-5

12 Digital Services Taxes: Do They Comply with International Tax, Trade, and EU Law, https://taxfoundation.org/france-digital-tax-international-tax-law-trade-law-eu-law/

13 Addressing the Tax Challenges of the Digital Economy ACTION 1: 2015 Final Report.

14 Prof. Piergiorgio Valente. International Taxation and Tax Policy: Taxation in future, training in Ulaanbaatar, 5-14 October 2021

- The new article will allow for the payment of withholding tax in the country where the payer is located (online advertising services, sale or other possession of user data, online search engines, online brokerage platform services, social media platforms, digital content services, etc.). , Online games, cloud computing services, standardized online teaching services).

Digital Economy Taxation Challenges:

- Where value is created - difficult to distinguish
- Allocation rules - complexity
- BEPS and "nature": whether value creation is related to functional analysis

**Pillars One and Two (in development by OECD)**

The BEPS project implementation program is defined by two pillars.[15]

Pillar One – Re-allocation of tax rights

- Resolve issues related to business and operation without physical involvement
- Determine where and on what basis taxes should be paid
- Determine which portion of profits should be taxed in the country where the customer or consumer is located

Pillar Two - Combating the erosion of the tax base and the profit shifting

- Assist to stop the transfer of profits to or with the help of new technologies
- Ensure minimum tax threshold for minimum multinational enterprises tax rate
- The Gaming Equalization Program between traditional and digital companies is the basis for the OECD's "Integrated Approach" to study the technical design and implementation that needs to be improved to develop a comprehensive, consensus-based solution.

As of October 2021, over 135 countries and jurisdictions have joined a new two-pillar plan to reform international taxation rules and ensure that multinational enterprises pay a fair share of tax wherever they operate.

**Pillar One – Re-allocation of tax rights**

As the largest multinational corporation, including e-companies, a real player in the globalization process, it will ensure a fair allocation of profits and taxes between countries. This means that countries will re-allocate some of their TNC tax rights to the market in which they operate and make a profit, regardless of whether the firms there are directly involved or not. Under Pillar I, it is planned to redistribute more than $ 100 billion in profit tax rights to the market each year.

**When distributing profits:**

- The tax base is income from the financial statements with some adjustments, and the loss is carried forward.
- The TNC calculates the amount of "A" and calculates the relevant tax liabilities, and appoints a group person to be responsible for administrative expenses and legal issues.
- The designated person will distribute the "A" amount to the countries in the market according to a certain formula.
- Allocation should follow the rules of revenue sources, for example, the user's geo-location (IP address), the address registered on the payment card, the country code of the mobile phone, etc.
- Countries that are close to each other cancel similar taxes, such as the Digital Services Tax

[15] Action 1 Tax Challenges Arising from Digitalisation, https://www.oecd.org/tax/beps/beps-actions/action1/

**Pillar Two - Fight against tax erosion and profits**

The aim is to protect the position of participants in the corporate income tax competition by introducing a minimum corporate tax rate that can be used to protect countries' tax bases. Pillar Two does not eliminate tax competition, but seeks to establish appropriate multi-stakeholder constraints. Stabilizing the international tax system and increasing the tax transparency of taxpayers and the tax administration will provide additional benefits.

The purpose is:

- "Race to the Bottom" is to stop the countries to race to minimum threshold
- Providing countries the right to collect extra taxes
- "Global Anti-Base Erosion (GloBE)" or Global anti-base erosion mechanism will come into force on January 1, 2023
- The rule regulates the system that multinational enterprises should at least pay 15% corporate income tax in each country where they operate.

## CONCLUSION

Digital change is a challenge to tax policy whereas supporting innovation, creating efficiency, improving services, improving more inclusive and sustainable growth, and improving well-being.

As the elements and principles of digital economic transactions become clearer as a result of the digital economy taxation debate, Pillars One and Pillar Two of taxation have become rules of procedure.

Identifying and taxing the tax-disruptive part of the digital economy transaction classification and their business model types, and the business model classifications that will interrupt the tax revenue, will help to identify the hidden economy.

Enabling an equal approach to the digital business model, harmonizing it with multi-stakeholder standards, and addressing the real challenges of policy implementation should be consistent with other laws, ensuring complexity, consistency, and avoiding discrimination.

Countries have reached a consensus on the implementation of the OECD's Global Regulations, Pillars One and Two, which will take effect on 1 January 2023.

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# ANALYSING OLIVER TWIST NOVEL'S TRANSLATION AND STYLISTICS

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**Abstract.** The reason behind the Mongolian translation mistakes including collected 142 sentences and some paragraphs of the novel have been studied due to the contrastive translation in Mongolian-English and comparative analysis of the translation in English-Russian based on the typology of mistranslation belonging to the interpretation and stylistics.

"Oliver Twist" novel's mistranslation concerning the stylistics (39 or 27.4%) is lower than the interpretation mistakes (84 or 59.2%) of the translation. Furthermore, research findings grounded typology of the mistranslation revealed that mistranslation by indirect translation is higher at 64 or 45.2%.

According to the requirements for the translation interpretation and stylistics, English source text was compared with the Russian target text to find out the cause of the mistranslation in indirect translation. Finally, the research could be used as theoretical and practical materials of the contrastive translation in Mongolian-English and comparative analysis in English-Russian translation caused by the corrected translation version for the mistranslation in the Mongolian target text.

**Keywords:** Contrastive and comparative translation, stylistic and interpretation, mistakes and typology, source and target texts, indirect translation

## INTRODUCTION

Researchers suppose British and American books have been introduced by Mongolians later. Edgar Allan Poe, “The Gold-Bug” is considered the first American book which was translated from German into Mongolian. D.Lkhamjav is a well-known translator who worked on the translation of many books such as Sister Carrie, Invisible man, etc. Furthermore, he edited the translation of many books in Russian and English. Charles Dickens, “The adventure of Oliver Twist” was first translated into Mongolian in 1958. Afterward, Monsudar Publication Company republished the book in 2009.

The purpose of the research could be defined as collecting mistranslated sentences and some paragraphs based on the requirements for the stylistics and interpretation of the translation including a typology of the mistranslation; then finding out the cause of the mistranslation related to the indirect translation and suggesting the corrected translation version for the collected sentences and paragraphs.

There is some research focused on analyzing translation of the source text in English and indirect text in the target language such as Ph.D. Dissertation in linguistics and translation of Dorjgotov Nyamjav and master thesis in linguistics and translation of Nyamdolgor Baasan. Furthermore, well-known scholar Gurbazar.R published the paper concerning indirect translation analysis of Guy de Maupassant, “Friend Joseph/ Patience” novel. Mongolian scholars have analyzed stylistics and interpretation including many works in Russian.

## RESEARCH METHODOLOGY

The research engaged in contrastive analysis in Mongolian translation and source text in English to collect the sentences and paragraphs including mistranslations in stylistics and interpretation. Afterward, the comparative translation of English and Russian concentrated on synthesizing the reason behind the mistranslation based on the indirect translation.

## LITERATURE REVIEW RELATED TO INTERPRETATION AND STYLISTICS OF TRANSLATION

### 1.1. Concerning translation as a mediation of the language

According to Jacobson.R, translation is the process of changing the entire text of the target language instead of replacing the coding of the language with another one. In other words, the functional role of the language is important rather than word-by-word translation. Translation requires keeping a combination of content and form of the source text to reveal the expression tone of the author. As scholar Dashdavaa stated it is the same as the Mongolian translation principle that pays attention to keeping the form of the text, content of the source, and literary harmony including meaning rather than format. Literary work requires to reveal some expression in-depth even it is impossible to be interpreted because of face-to-face communication no word and mutual relation including mimic in the real situation. It indicates that literature plays a key role in literary work. (Орчуулах эрдэм 6, 1988)

### 1.2. Equation of the translation

Translation equation of mother tongue comprehends permanent component of the translation language including the process of converting the certain segment of mother tongue into the target language. Component synonyms of mother tongue and translation language release only precondition of the translation equation. The equation consists of segments between mother tongue and translation language which delivers utterance instead of separate components during the translation process. (Комиссаров.В.Н, 2008)Translation equation for the components of mother tongue is the starting point of the research. These kinds of segments for the mother tongue could appear at various levels of the language system including phonemes and sentences.

### 1.2.1. Comprehension related to the equivalent of the translation

Intercommunity between the source text and translation content is translation equivalent.
The research focused on the real connection between the content of source text and translation text is considered common scope which releases the closest approaches of the topic content in various languages. (Комиссарров.В.Н, 2008)
Translation equation is fulfilled in high level due to the complete conversion of the content in the source text. Thus, the translation equation plays the main role in keeping the various segments of content in the source text through the conversion. (Комиссаров.В.Н, 2008)
The principle of the equation is the final requirement to meet the various norm of the translation. In other words, converting the content of the text is an important quality and requirement for language communication. (Комиссаров.В.Н, 2008)

### 1.3. Vocabulary translation concerning national feature

The outer character of national distinction includes vocabulary and concepts concerning traditional lifestyle such as proper names and place names, vocabulary with national feature-real, relationship of kin, traditional and religious ceremony. On the contrary, the inner character of national distinction consists of the language structure containing idiom, proverb, slang, jargon, dialect, metaphor, and simile. (Дашдаваа.Д, 2010)
Dashdavaa.D Mongolian scholar of translation studies suggested translation method to the conversion of real in his book “Memorandum of translation“.

1. Transcribe
2. Duplicate (calque)
3. Explain
4. Making footnote
5. Explain including transcription

According to a well-known translator Gurbazar.R, vocabulary translation of national features are identified as the following methods:

1. Transcribe-it is the most common method of translation. Some Mongolian vocabularies such as ail, aimag, ard, argal, gobi, datsan, zeer, khural, tugrug, tamga, savan, etc. are transcribed in western languages.
2. Duplicate or follow word by word. It is a translation method that concerns vocabulary conversion as regards the mold of the mother tongue.
3. Conversion based on the replacement of synonyms
4. Explain

Footnote is preferred when the above conversion method is limited for translation.
The researcher focused on analyzing the translation of proper names, names of places, and footnotes in collected sentences and paragraphs of mistranslation based on weakening the quality of the translation rather than content.

### 1.3.1. Translation of proper names and names of places

The theoretical background concerning translation reveals that conversion methods including transcription, literal interpretation, and using traditional names are dominant for the translation of place names. For example: Монблан /Mont-Blans/, /Champs Elysees/ Елисейские поля, (Дашдаваа.Д, 2010)
Furthermore, it is required to attach the definition of the place names such as a river, mountain, and comprehension of the translation is emphasized to add an explanation to the duplication (calque) of plant names including flower, tree when there are no appropriate names of translation. (Орчуулах эрдэм 6, 1988)
According to the findings, it’s necessary to stick the footnote and add an description to the translation of place names. Finally, translation of the real consists of the footnotes related to the source text in English.

### 1.4. An overall view toward stylistics and requirements for the translation

As M.I.Kalinin mentioned, "It's impossible to spread the most top record of the human mind and the deepest knowledge, and the sharpest concept without the clear and proper expression of the word" since it is valuable for the translation stylistics. Furthermore, mistakes in stylistics appear due to the poor quality of stylistic requirements in translation. (Ц.Сүхбаатар, 2008)

According to scholar Sukhbaatar.Ts the following stylistic mistakes are identified. Үүнд:

- Choosing improper vocabulary
- Redundant words
- Missing words
- Misuse of simile and metaphor
- Repetition of the same rooted words (Ц.Сүхбаатар, 2008)

Furthermore, he mentioned the reason behind mistakes in translation stylistics including grammar mistakes that comes as a result of contradiction against word formation, word formation rule, and grammar norm. Thus grammar mistakes are considered stylistic mistakes in the translation process.

As scholar Komissarov. V.N classified, the translation mistakes in his book "Theory of the translation" the following reasons were identified. (Комиссаров.В.Н, 2008)

1. Misconception of the source text in translation
2. Not accurate conversion excluding misconception of the source text in translation
3. The conversion kept the general conception of the source text whereas the mistakes concerning the poor quality of the translation due to the difference against standard of translation stylistics
4. Mistranslation does not influence the conversion equivalent whereas the mistakes come as a result of inconsistency against the translation norm.

The researchers focused on studying the translation stylistics and interpretation of the "Oliver Twist" (Диккенс, 2009) based on the mistakes classification in stylistics of the scholar Sukhbaatar.Ts and the reason behind the interpretation mistakes in translation of scholar Komissarov. V.N.

Thus, the mistranslation classifications of the novel were identified in two categories including poor quality of the conversion due to the difference against the norm of translation stylistics rather than misconception in the source text and mistranslations regarded as an interpretation of the translation equivalent.

#### 1.4.1. Vocabulary segments including positive and negative evaluability of the stylistics

Language segments of stylistics medium consist of vocabulary concerning formal and informal (obloquy) words. Formal writing in stylistics includes language instruments such as respected sense, political concern, motto, poetry, literature, and satire.

Formal and informal writing in stylistics are identified as the following classifications:

A. Formal writing with a manner of respect
B. Mediation stylistics (literary language)
   a) oral
   b) written:
      -formal file
      -scientific
      -political, newspaper (Н.Нансалмаа, 2008)

Mistakes in stylistic come when there is a variance in principles of stylistic harmony. However, some stylistic including art, publication, plain talk consciously focused on creating a humorous character based on the variance in principles. Thus, principles of stylistic harmony are not strict. (Ravdan.E, 1982, p.21-27)

### 1.5. Socio-linguistic factors in the principle of use

Socio-linguistic factors which met the distinction of speech in separate groups play a key role in the translation principle of use. Translation recipients face some additional barriers in the norm of the

mother tongue concerning the variance in principles such as dialect, social dialect, and foreign mispronunciation.
Foreign mispronunciation could be expressed consciously or unconsciously in the source text. Firstly, mispronunciation might be appeared due to the less proficiency in the target language and it could bring some complicated results for the recipients because it requires the recipients to compare the mispronunciation with the correct spelling. However, translators tend to correct the mispronunciation during the translation process.
Secondly, mispronunciation releases the instrument for the foreigner expression and a new method for the capacity to use the topic. Keeping translation misspelling requires meeting the expression used in the source text. (Комиссаров.В.Н, 2008)

### 1.5.1. Keeping an exemplar as a special character in the translation

As professor Fedorov.A.V. mentioned replacing the dialect in source text with the dialect of the mother tongue is not proper in the translation as the dialect of the target language tend to bring national feature rather than expression in the source text. (Дашдаваа.Д, 2010)
There are various reasons for literary characters not meeting the norm of literature. For example, the author focused on expressing the poor education and fewer ethics of the character.
Gogol.N.V "Байцаагч түшмэл", Osip servant of Khlestakov misspells "theater" as "keather", Turgenev.I.S. "Анчны тэмдэглэл" Kuzma maid of Tatyana Vasilievna mispronounces "theater" as "kether". It is required to keep misspelling in Mongolian based on the popular mispronunciations as "chaatar" among us. Moreover, it is required to keep the special character of the children such as innocence, emotion, morant manner, short sentences in the translation of the target text. (Дашдаваа.Д, 2010)
It is required to express both contents of the speech and the dignity of the character because identity could be expressed through the individual speech. (Vladimirov, Nekotoryye.N, 1957, p.29) As mentioned above, it is important to keep the special expression of characters in speech. According to the findings, the Russian indirect translation of the source text influenced the poor quality of the translation in Mongolian due to the expression of the author in misspelling were corrected in the Russian text.

## 2. Mistranslation typology in "Oliver Twist" novel

The researcher engaged in correcting the mistranslation of the Oliver Twist novel rooted in the theory of translation equivalent and translation requirements such as stylistic and interpretation both in a comparative and contrastive analysis of the conversion.

The best translation can survive during the challenges of the years. The translator worked well on converting the text, equaling the national feature, making footnotes, and using various interjections.

The research could be used as theoretical and practical materials for the non-English major students and English professionals to analyze individually the comparative and contrastive translation in the classroom and out of the class.

The researcher analyzed 142 mistranslations of the "Oliver Twist" novel based on the mistakes typology in the Mongolian target text. The typology of the mistranslation was identified as the following categories:

**a. Poor quality of the translation due to conflictions against the norm in translation stylistic rather than mistranslation concerning general concept of the text**

- Choosing improper vocabulary
- Repetition of the same rooted words
- Misuse of simile and metaphor-Vocabulary concerning national feature (real, proper names & place names, footnotes)
- Redundant words
- Missing words

➢Grammar mistakes (Ц.Сүхбаатар, 2008)

As a result of the findings, mistranslation regarde as interpretation are dominant in the translation of "Oliver Twist" novel and the researcher paid attention to find the reason behind the mistranslation.

**b. Interpretation mistakes concerning translation equivalent**

The following percentages were identified in the typology of mistranslation:

- The conversion kept the general conception of the source text whereas the mistakes concerning the poor quality of the translation due to the difference against standard of translation stylistic including vocabulary translation with national features such as real, footnotes, proper names, and place names
- Not accurate conversion excluding misconception of the source text in translation (unclear statement)

According to the findings, mistranslation due to the interpretation is higher at 31.8% than mistakes in stylistic whereas other mistakes are at 13.4%.

| **A. Mistranslation due to the indirect translation in Russian target text** | | **Quantity** | **Percentage** | **B. Mistranslation excluding indirect translation in the Russian target text** | | | **Quantity** | **Percentage** | |
|---|---|---|---|---|---|---|---|---|---|
| **I. Stylistic** | Repetition of the same rooted words | 5 | 3.5% | **II. Interpretation** | Not accurate conversion excluding misconception | | 15 | 10.5% | **Total: 103/ 72.6%** (Interpretation & other) |
| | Misuse of simile and metaphor | 11 | 7.7% | | The conversion kept the general conception | Real | 26 | 18.5% | |
| | | | | | | Footnotes | 20 | 14% | |
| | | | | | | Proper names and place names | 23 | 16.1% | |
| | | | | **Total:** | | | **84** | **59.2 %** | |
| | Choosing improper vocabulary | 14 | 9.8% | **III. Other** | Keeping special feature of the character | | 9 | 6.4% | |
| | | | | | Missing parts | | 10 | 7% | |
| | Redundant vocabulary | 3 | 2.1% | **Total:** | | | **19** | **13.4 %** | |
| | Grammar | 6 | 4.3% | | | | | | |
| **Total:** | | **39** | **27.4%** | | | | | | |

Table 1. Typology of mistranslation

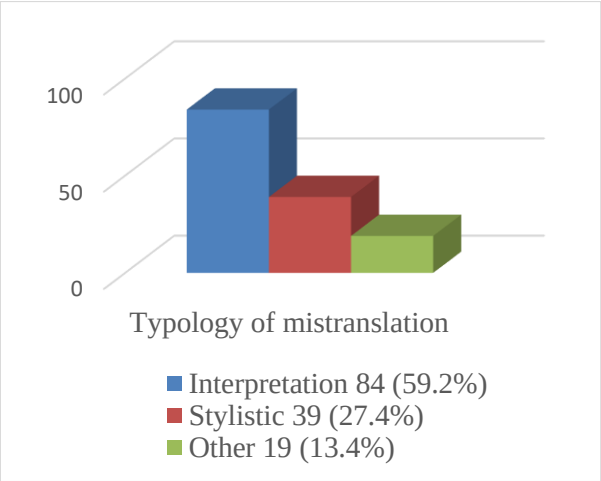


Figure 1. Mistranslation typology in “Oliver Twist” novel

Mistranslation regards as stylistic and interpretation were analyzed in detailed examples.

### c. Mistranslation related to the indirect translation in the Russian target text

The reason behind the mistranslation of the target text such as stylistic and interpretation was studied deeply in two categories including indirect translation and excluding the indirect translation in Russian text.

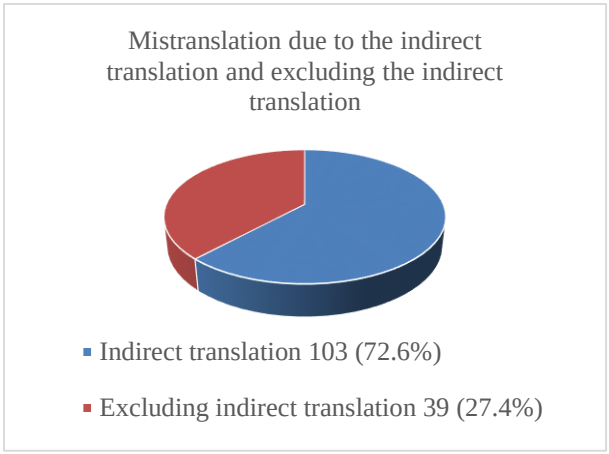


Figure 2. Mistranslation due to the indirect translation and excluding the indirect translation

As a result of the findings, the mistranslation related to the interpretation and other mistakes of the target text in Russian is higher at 45.2% than the stylistic mistakes excluding the indirect translation. Furthermore, a mistranslation of the interpretation due to indirect translation in Rusian is higher at 45.8% than other mistakes concerning the target text in Russian.

## 2.1. Typology of vocabulary translation including the national feature

The translator preferred to remove the footnote and attachment of the vocabulary translation including the national feature in the Russian target text. As mentioned by the scholar Shatar.M, it is inappropriate to convert the real of the source text in Mongolian similar expression with a footnote for the literature since its stylistic tend to be apart from Mongolian. (Shatar.M, 1982) Thus, the translator adopted the word-by-word translation instead of attaching the footnote for the vocabulary translation including the national feature and it was suitable for the conversion of some vocabulary. However, the real is important for the translation as the explanation and footnotes in attachment could be not only informative but also significant in culture for the audience.

### 2.1.1. Translation of footnotes

| | |
|---|---|
| **Source text:** | XVI.146. It was **Bartlemy time** when I was shopped; and there wasn‘t a penny trumpet in the fair, as I couldn‘t hear the squeaking on. |
| **Target text[1]:** | XVI.122. Меня сцапали в **Варфоломеев день***, и не было на ярмарке такой грошовой трубы, писка которой я бы нерасслышал. |
| **Target ext[2]:** | XVI.129. Намайг **Варфоломын цагаар** хорьчиход л тэр яармагт түүний дуулдахгүй өчүүхэн ч хонгил байгаагүй юм даг. |
| **Target text[3]:** | Намайг ***Варфоломын яармагийн үеэр*** хоригдоход л зүнгийн дуу дуулдахгүй өчүүхэн булан ч булан тохой тэнд байгаагүй юм даг. |

*It might be acceptable to translate the text with the explanation as “during Bartholemew Fair” which was held for 3 days on 09.03.1800.

### 2.1.2. Translation of place names

| | |
|---|---|
| **Source text:** | XVI.146. It was **Smithfield** that they were crossing, although it might have been **Grosvenor Square**, for anything Oliver knew to the contrary. |
| **Target text[1]:** | XVI.122. Они пересекли **Смитфилд,** но Оливер все равно не узнал бы дороги, даже если бы они шли через **Гровенор-сквер.** |
| **Target ext[2]:** | XVI.128. Тэд **Смитфилдийг** хөндлөн огтолж гарсан бөгөөд **Гросвекосверээр** гарсан ч Оливер замаа танихгүй байсан билээ |
| **Target text[3]:** | Тэд Лондоны Сити хотын нутаг ***Смитфилд малын захаар*** хөндлөн огтолж гарсан бөгөөд ***Гросвенор гэдэг томоохон цэцэрлэгтэй талбайгаар*** гарсан ч Оливер замаа танихгүй байсан билээ. |

It is worthy to add explanation with duplication to the target text as duplication (calque) in the translation of the place names is not informative and significant for the audience whose culture is different from the source text in English. Finally, footnotes are not required for the duplication with the explanation in the conversion process.

### 2.2. Stylistic analysis of translation in “Oliver Twist” novel

### 2.2.1. Mistakes concerning the repetition of the same rooted words

| | |
|---|---|
| **Source text:** | II.29. Do you think this respectful or proper conduct, Mrs.Mann, ‘inquired Mr.Bumble, grasping his cane, to keep the **parish** officers a waiting at your garden-gate, when they come here upon **parochial** business with the **parochial** orphans? |
| **Target text[1]:** | II.22-Неужели, миссис Манн, вы считаете почтительным или пристойным, -осведомился мистер Бамбл, сжимая свою трость, -заставлять **приходских** должностных лиц ждать у садовой калитки, когда они являются сюда **поприходским** делам, связанным **с приходскими** сиротами? |
| **Target text[2]:** | II.19. **Отгийн** албаны хүмүүс **отгийн** өнчин ядуустай холбогдсон **отгийн** ажлаар ирэхэд нь хаалганыхаа гадаа хүлээлгэн зогсоож байх явдлыг Манн авгай та хүндэтгэл зүйд нийцсэн хэрэг гэж үзэж байна гэж үү дээ!-гэж Бамбл гартаа барьж явсан торлогийг чанга атгаж асуугаад: |
| **Target text[3]:** | ***Отгийн*** албаныхан өнчин ядуустай холбоотой ***албан*** ажлаар ирэхэд хашааныхаа гадаа хүлээлгэн зогсоох ***ийм явдал хүндэтгэл зүйд нийцэх нь юу л бол*** Манн авгай! |

Three times repetition of the same rooted word “parish officers “weakened the translation stylistics. The translator worked well on converting the sentence in the question of the source text and target text as an exclamative sentence in Mongolian target sentence which is a proper expression of emotion.

### 2.2.2. Redundant words

| | |
|---|---|
| **Source text:** | III.34. “Come,” said Mr. Bumble, somewhat **less pompously**,… |
| **Target text[1]:** | III.34. Полно,-сказал мистер Бамбл уже **не таким торжественным тоном**, |
| **Target text[2]:** | III.33. Битгий уйл гэж мистер Бамбал энэ удаа **ёсорхог байдалтай бишээр** хэлэв. |
| **Target text[3]:** | Битгий уйл гэж ноён Бамбал энэ удаа ***ёсорхож мосорхсон ч үгүй*** хэлэв. |

Parts of speech with joint meaning such as nouns, adjectives, numerals, adverbial nouns of time and place are derived from the first letter of parallel words (the last word) could be replaced by m, z, s letters and m, z, s constants added to the words begins by vowels. The formation of parallel words in Mongolian is very fixed and synonyms begin with vowels are before the constants, positive meaning words are before the negative ones, a large quantity of words are before the small amount. (Ts.Unurbayan, 2004:65-66) Translation of “ёсорхож мосорхох” would enable the translator to avoid applying redundant words in translation of Mongolian target text.

### 2.2.3. Choosing improper words

According to the requirements for the stylistic, it is important to adopt a tone of the words in narration and writing. This kind of mistake tends to be appeared due to the improper tone of only one word.

| | |
|---|---|
| **Source text:** | XV.140. Don’t put on an injured look at the question; you’ve done it many a time. **Jerk the tinker!** |
| **Target text[1]:** | -Нечего корчить обиженную физиономию. Вы это уже не раз проделцвали. **Звянкните!** |
| **Target text[2]:** | -Чи замдаа тайлаад нэг хоёрыг нь залгичихсан юм биш биз? гэж Сайкс хардан сэжиглэж асуугаад-битгий гэмгүй царай гаргах гээд бай. Ямар урьд нь тэгж яваагүй биш чи! **Хонх чинь дэлд гэлээ.** |
| **Target text[3]:** | -Ямар урьд нь тэгж яваагүй биш чи! ***Мулгуу амьтан*** чинь гэлээ. |

It could be appropriate to translate the phrase “Pulled a cord” as “Урагшгүй амьтан” which is the synonym for “дүүрсэн тэнэг” since word-by-word translation in Russian target text and the English source text couldn’t reveal the main point of the expression.

### 2.2.4. Not accurate conversion excluding misconception of the source text in translation

There are some sentences with unclear statements in the target text in Mongolian.

| | |
|---|---|
| **Source text:** | XIII.119. …-the kind of legs, which in such costume, always look in an unfinished and incomplete state without **a set of fetters** to garnish them. |
| **Target text[1]:** | XII.99. –такие ноги при таком костюме всегда производят впечатление чего-то незакноченного, если **их не украшают кандалы**. |
| **Target text[2]:** | Түүний хөл нь өмссөн польтотойгоо байхад хэрэв **дан өнгөөр чимэхгүй бол нэг дутуу хагас юм шиг харагдана**. |
| **Target text[3]:** | Өмссөн хүрэмтэйгээ ***өмдөө хослуулаагүй*** тэр хүний хөл нэг зохицолгүй этгээд харагдах ажээ. |

### 2.2.5. Misuse of simile and metaphor

Some kind of strange and inappropriate description out of interpretation comes as a result of misuse of simile and metaphor. (Ц.Сүхбаатар, 2008)

| | |
|---|---|
| **Source text:** | IV.53. There! Get downstairs, the **little bag of bones**. |
| **Target text[1]:** | IV.43. Ну, ступай вниз, **мешок с костям**! |
| **Target text[2]:** | IV.43. За, **шуудайтай ясаа** доошоо ор! гэв. |
| **Target text[3]:** | Алив, ***бяцхан ясан хэрдэг*** минь доошоо ор! гэв. |

“(Were) only skin and bone” –“Зөвхөн яс, арьс хоёр” phrase is a synonym for “Bag of bones” expression. Moreover, “Bag of bones” means thin and skinny in the dictionary whereas word-by-word translation is an inappropriate simile for the way of thinking in Mongolia.

**2.2.6. The conversion kept the general conception of the source text whereas the mistakes concerning the poor quality of the translation (vocabulary translation with the national feature)**

Protestant religion chases the scripture in the Bible concerning salvation source is the grace through faith instead of a result of works.

| | |
|---|---|
| **Source text:** | XXX.267. Mr. Giles, are you a **Protestany**? |
| **Target text[1]:** | XXX.244. –Мистер Джайлс, вы **протестант**? |
| **Target text[2]:** | XXX.233. Джайлс та чинь **протестант мөргөлтэй** биз? |
| **Target text[3]:** | –Жайлс та чинь ***итгэлээр зөвтгөгдсөн протестан мөргөлтэй*** хүн биз? |

As Saint Paul the Apostle, one of the early Christian leaders emphasized the bible verses Ephesians 2:8-9 as “[8] For by grace you have been saved through faith. And this is not your own doing; it’s the gift of God, not a result of works, so that no one may boast (https://biblia.com/bible/esv/ephesians/2/8-9, огноо байхгүй)

The translation including the above footnote and explanation could be not only appropriate but also informative in culture and religion that is different from Mongolians.

**2.3. Other mistakes in translation of the novel**

**2.3.1. Keeping special feature of character in the speech**

| | |
|---|---|
| **Source text:** | VIII.82. Walking for **sivin** days!‘ said the young gentleman.<br>VIII.83. I suppose you don‘t know what a beak is, my **fash com-pan-i-on**.‘<br>VIII.83. …but always going up, and **niv-er** a coming down **agin**. Was you never on the mill?<br>VIII.84. Don‘t fret your eyelids on that score.‘ said the young gentleman. I‘ve got to be in London to-night; and I know a spectable old gentleman as lives there, wot’ll give you lodgings for nothink, and never ask for the change—that is, if any **genelman** he knows **interduces** you. And don‘t he know me? Oh, no! |
| **Target text[1]:** | **Семь** дней! -воскликнул молодой джентльмен.<br>VIII.68.…ты не знаешь, что такое клюв, **приятель**?<br>VIII.68. И если идешь по приказу клюва, то идешь не прямовперед, а к петле, и с нее уж **не сорваться**. Ты **никогда** не бывал наступальном колесе? *<br>VIII.69. Нечего тереть из-за этого глаза,-сказал молодой **джентльмен**. Сегодня вечером я должен быть в Лондоне, а там у меня есть знакомый, почтенный старый джентльмен, который приютит тебя даром и сдачи непотребует, -конечно, если ему тебя **представит джентльмен**, которого онзнает. А разве он меня не знает? О нет! |
| **Target text[2]:** | VIII.72. **Долоо** хоног явган явлаа гэнэ ээ!<br>VIII.72. ―Хушуу гэдгийг чи лав мэдэхгүй байх шиг байна **шинэхэн** тэнэмэл **найз минь**? гэв.<br>...Хушууны тушаалаар явна гэдэг чинь зүгээр урагшаа явах биш, харин дүүжлүүлэх гэсэн үг, **түүнээс** газар дээр бууна гэдэг ч гонж.<br>VIII.72. Чи нарсанд орж **үзэв үү**? Гэв.<br>VIII.73. Энэ тухай бүү зов, би өнөө орой Лондонд очно. Тэнд миний таньдаг нэг сайн өвгөн бий. Чамайг гэртээ суулгаад хөлс мөлс ч авахгүй байх. Өөрийг чинь таньдаг **хүн** чамайг **танилцуулахаар** тэгэхээс биш яахав. Тэр ямар намайг танихгүй биш дээ гэснээ, үгүй намайг лав танихгүй байлгүй дээ! Гэв. |

| | |
|---|---|
| **Target text[3]:** | VIII.72. **Дороо** *(долоо)* хоног явган явлаа гэнэ ээ!<br>VIII.72. ―Хушуу гэдгийг чи лав мэдэхгүй байх шиг байна шинэхэн тэнэмэл **танил** минь? (найз минь) гэв.<br>...Хушууны тушаалаар явна гэдэг чинь зүгээр урагшаа явах биш, харин дүүжлүүлэх гэсэн үг, **түүнээс** газар дээр бууна гэдэг ч гонж.<br>VIII.72. Чи нарсанд орж **үжэв** *(үзэв) үү* ? гэв.<br>VIII.73. Энэ тухай бүү зов, би өнөө орой Лондонд очно. Тэнд миний таньдаг нэг сайн өвгөн бий. Чамайг гэртээ суулгаад хөлс мөлс ч авахгүй байх. Өөрийг чинь таньдаг **хүм** *(хүн)* чамайг **танилчуулахаар** (танилцуулахаар) тэгэхээс биш яахав. Тэр ямар намайг танихгүй биш дээ гэснээ, үгүй намайг лав танихгүй байлгүй дээ! Гэв |

Charles Dickens expressed the special feature of character Jack Dawkins, better known as the Artful Dodger, is a pickpocket who mispronounces the following words as *Seven-Sivin, never-niv-er, gentleman-genelman, introduce-interduces, again-agin*. Thus, the author emphasized the companion as a niv-er, to-night, com-pan-i-on. As honored professor Ravdan.E stressed, the explanation in the translation would be appropriate for intimating the special features of the character. It would be better to put misspelling of these words with an attachment including correct spelling in round brackets.

### 2.3.2. Missing parts in the translation of the source text

| | |
|---|---|
| **Source text:** | XXVI.238. ...grasping the coward round the body, with both arms, as he sprung to his feet. |
| **Target text[1]:** | XXVI.200.-...вскричал еврей, обеими руками обхватив труса, когда тот вскочил с места. |
| **Target text[2]:** | XXVI.209.-... Энэ муу хонгилд чөтгөр үүрлээ юү? Юу вэ? гэв.<br>-Юу болоо вэ? *гэж айсандаа нэг атга болон, хоёр гараа хөлрүүгээ сунгаад.*<br>Хаана? гэхэд цаадах нь: |

Contrastive and comparative translations analyses are not only informative practical materials but also the theoretical backgrounds for the students.

## DISCUSSIONS

Literary language is different from other kinds of style since it includes using description and literalism, creating an artistic character, and applying a variety of vocabulary. According to the result of the research including the correction process of the translation mistakes, contrastive translation in Mongolian-English, and comparative analysis of the translation in English-Russian based on the typology of mistranslation revealed that mistakes belonging to the interpretations are higher than the stylistic mistranslation in the Mongolian target text. (Ц.Сүхбаатар, 2008)

Literary language is vital to the exact expression of the meaning as a clear statement relies on truth. (2010) Comparative analysis of the translation in English-Russian exposed that some mistranslations such as expression of the author including special feature, emotional mood, some missing parts came due to the indirect translation in the Russian target text. Indirect translation in Russian target text influenced the poor quality of the translation especially interpretation and stylistic in the Mongolian target text.

Western culture including national features in real, footnote and description for the proper names and place names would be not only informative but also significant for the Mongolians who have eastern culture.

## SUMMARY

The translator worked well on translating interjections and making some footnotes for the vocabulary which keeps the national feature real. The final result of the findings concentrated on analyzing the mistranslations in the range of the stylistic, interpretation, and other mistakes. The result of the findings revealed that mistranslation of the vocabulary containing real or national features is not dependent on the indirect translation of the Russian target text.

The result of the findings revealed that mistranslation of the vocabulary containing real or national features is not dependent on the indirect translation of the Russian target text. Furthermore, our translation version for the mistranslation is not the perfect suggestion for the target texts. In other words, there could be a better version of the translation. As mentioned above, interpretation mistakes are higher than stylistic mistranslation whereas other mistakes such as missing parts in translation, special features of the character are at 13.5%.

Furthermore, our translation version for the mistranslation is not the perfect suggestion for the target texts. In other words, there could be a better version of the translation. The author's expression of the character could not be kept in Mongolian target text because the special features of the character couldn't be expressed in indirect translation of Russian target text.

There are some sentences and paragraphs which have no fate to be included in the target texts in Russian and Mongolian. There is a misconception that the translation of the target text is dependent on the poor quality of the indirect translation. Phonetic transcription and word-by-word translation are dominant and it could be a great advantage for the target text in Russian which is considered as indirect translation. Moreover, the Russian target text is considered a perfect translation same as the English source text because mistranslation due to the indirect translation is lower at 45%. Finally, the reason behind the mistranslation of the indirect translation could be explained by the research hypothesis that the translator might use both Russian target text and English source texts.

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# THE ISSUE OF CRYPTOCURRENCY REPORTING

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**Abstract.** The first concept of cryptocurrency or e-cash was established in 1983, one of the fastest-growing and expanding payment instruments in the world in the last decade. In 1989, DigiCash, the first electronic payment instrument, was introduced for micro-payments in the United States. Since then, a cryptocurrency called Bitcoin has emerged, with a market capitalization of more than $ 1 trillion and more than 40 percent of the world's cryptocurrency market in just over a decade. Therefore, we aimed to study how to record and report cryptocurrencies for the financial statements in this market. Currently, standards and legal acts on reporting in the financial statements are rare not only in Mongolia but also in other countries of the world. Our hypothesis suggests that cryptocurrencies can be recorded and reported as intangible assets and inventories. In the future, they may be replaced by traditional currencies as a means of payment and recorded and reported as cash.

**Keywords:** cryptocurrency, coin, token, financial statement

## INTRODUCTION

The word crypto is derived from the ancient Greek word “kryptós”, which translates as implicit or private. Currently, there are about 10,000 cryptocurrencies in the cryptocurrency market, which is valued at $2.5 trillion[16], and the market capacity and the number of coins are likely to increase in the future. The reason why cryptocurrencies are evolving so rapidly and on such a large scale is that the world sees them as technologically and efficiently viable in the future, replacing banking systems and traditional currencies such as payment and transfers. There are many advantages, such as high security, decentralized services, and the fact that no regulators or political institutions control their supply. In Mongolia, on October 1, 2017, “The Digital Exchange Mongolia” LLC is established as the first cryptocurrency exchange[17] and continues to operate successfully. In 2017, ArdBit LLC launched the cryptocurrency, ArdCoin (ARDX)[18], which is trading on Mongolia and foreign exchanges. Therefore, we decided to study the issue of reporting on cryptocurrencies.

## CURRENT SITUATION OF CRYPTOCURRENCY

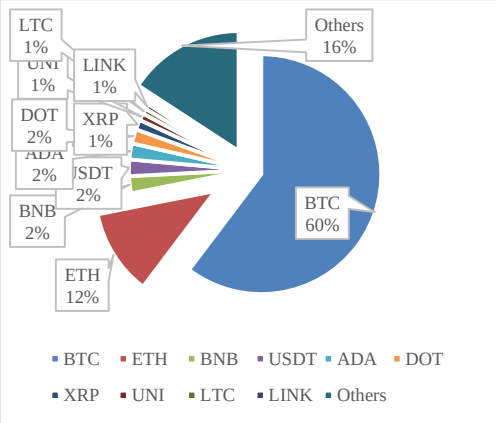


Figure 1. Market share

There are currently 9742 cryptocurrencies on the market valued at $2.5 billion, of which 60.4 percent is bitcoin. As shown in figure1, the top 10 cryptocurrencies of for about 85 percent of the total market, and the remaining 15 percent are other cryptocurrencies. 301 exchanges trade cryptocurrencies. Table1 shows the exchanges with the most access, highest trading amount, and highest ratings.

Table 1. Information of Exchanges

| № | Name of exchange | Trade amount of a day | Traders of a day | Component of cryptocurrency portfolio | Number of trading cryptocurrency |
|---|---|---|---|---|---|
| 1 | Binance | $21,356,192,585 | 14,296,860 | 1,138 | 46 |
| 2 | Coinbase Pro | $2,118,827,005 | 2,331,017 | 142 | 3 |
| 3 | Kraken | $1,061,078,068 | 2,266,008 | 284 | 7 |
| 4 | Bitfinex | $1,137,868,375 | 458,234 | 279 | 4 |
| 5 | Huobi Global | $6,364,413,798 | 831,763 | 930 | 50 |
| 6 | Kucoin | $864,736,857 | 578,775 | 624 | Token |

*Source: www.coinmarketcap.com*

As of December 30, 2020, more than 130 countries around the world have adopted legal acts[19] regulating cryptocurrencies. These include 15 countries in the Americas, 14 countries in the

[16] www.coinmarketcap.com
[17] www.trade.mn
[18] www.stex.com and www.bittrex.com
[19] https://www.loc.gov/law/help/cryptocurrency/world-survey.php

Caribbean, 49 countries in Europe, 24 countries in Africa, and 27 countries in Asia. The common denominator of the legislation in these countries is the prohibition of money laundering and terrorist financing, as well as the regulation of cryptocurrency taxes.

The tax issue calculates the tax base depending on whether the cryptocurrency is being mined or sold. For example, the United Kingdom imposes income taxes and corporate taxes on legal entities, Switzerland imposes income taxes on foreign currencies, Israel imposes income tax on assets, Bulgaria imposes income taxes on financial assets, and Denmark, Argentina, and Spain impose income taxes. The nine cryptocurrencies are traded in MNT at Mongolian cryptocurrency exchange /www.trade.mn/, in addition to the major cryptocurrencies such as BTC, ETH, LTC, XRP, and ARDX.

The regulation of the "Sandbox Regulatory Environment Regulation"[20] of Mongolia aims to support the introduction of innovative products, services, and business models based on new technologies entering the financial market. This goal includes the following three objectives:

1. In a limited environment under the supervision of a financial regulator;
2. Create a regulatory environment for testing over some time;
3. Define the requirements for participants and coordinate the relevant relations;

## CRYPTOCURRENCY BOOKKEEPING AND REPORTING

Although there are no direct standards for cryptocurrencies, we have studied how to classify and bookkeep under existing international accounting standards. Technologically, cryptocurrency is divided into coins and tokens. Coins are based on their blockchain, while the token is based on already existing blockchains[21]. There is no significant difference in accounting, with the market involving the same investors, financiers, and brokers as the stock market, and the company that initially offers its coins and tokens to the public is called an ICO (Initial Coin Offering).

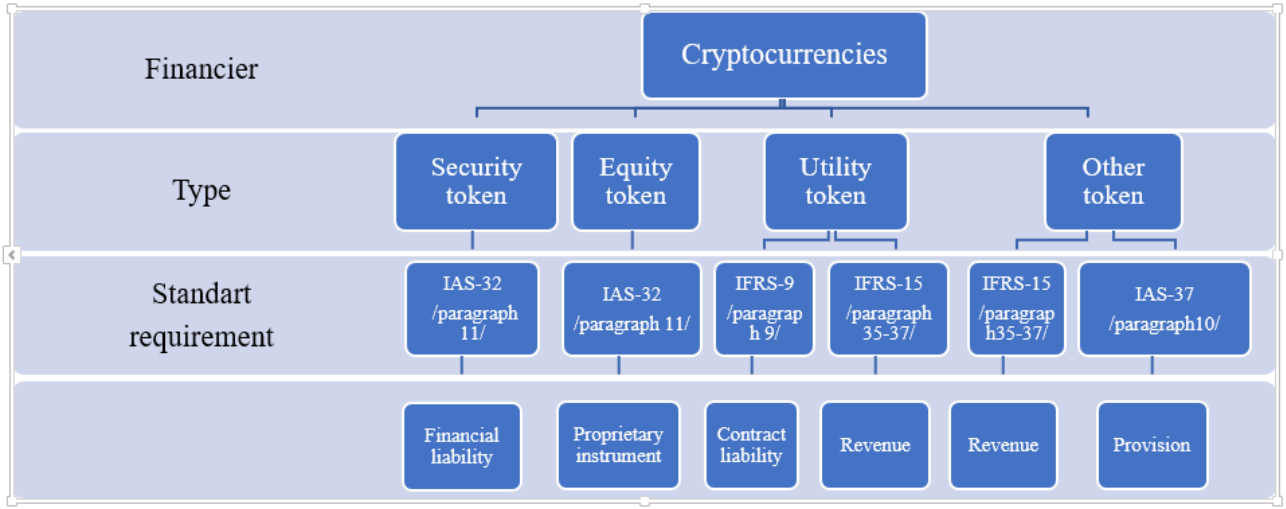


Figure 2. Type of recording for Financier

As a financing company, it is possible to record and report differently depending on the type of the token.

a) **Security token:** A company is classified as a financial liability if it is obliged to exchange financial instruments with another entity on unfavorable terms when issuing a token, or if it has a contractual obligation to settle or settle with its funds. In this case, it shall be recorded and reported under International Financial Reporting Standards (IFRS 9)[22].

[20] Joint Regulation of the Governor of the Bank of Mongolia, Chairman of the Financial Regulatory Commission, Minister of Finance and CEO of the Deposit Insurance Corporation March 1, 2021

[21] Ethereum, Neo, Waves, Lisk, Strtis etc..,

[22] IAS-32 (paragraph 11)

Table 2. Recording and reporting of Security token

| Type | Criterion | Debit | Credit | IFRS-9 Financial Instruments | |
|---|---|---|---|---|---|
| | | | | Initial measurement | Measurement after the reporting period |
| **Security token** | IAS-32 (paragraph 11) | Monetary asset | Financial liability | Fair value | Amortized cost |

b) **Equity token**: If a company has a contractual obligation to represent its remaining share in an entity's assets after deducting all tokens, it should be classified as an equity instrument and accounted for by International Accounting Standards (IAS) 32.

Table 3. Recording and reporting of an Equity token

| Type | Criterion | Debit | Credit | **IAS 32 Financial instrument** | |
|---|---|---|---|---|---|
| | | | | Initial measurement | Measurement after the reporting period |
| **Equity token** | IAS-32 (paragraph 11) | Monetary asset | Proprietary instrument | Amount of received | Reported book value |

c) **Utility token**: If a company has a contractual obligation to supply a product or service by issuing a token, it is appropriate to record and report revenue from the contract with the buyer by IFRS 15.

Table №. Recording and reporting of Utility token

| Type | Criterion | Debit | Credit | **IFRS 15 Contract liabilities** | |
|---|---|---|---|---|---|
| | | | | Initial measurement | Measurement after the reporting period |
| **Utility token** | IFRS-15 (paragraph 9) | Monetary asset | Contract liabilities | Amount of received | Residual performance obligation |

***

| Type | Criterion | Debit | Credit | **IFRS -15 Revenue** | |
|---|---|---|---|---|---|
| | | | | Output method | Input method |
| **Utility token** | IFRS -15 (paragraph 35,36,37) | Contract liabilities | Revenue | Percent of Performance, evaluation of results achieved, progression progress, time spent, number produced or supplied | Resources spent, labor hours, costs incurred, time spent, machine hours used |

d) **Other tokens:** If there is a token that does not meet any of the above definitions, it is possible to identify, record, and report the appropriate approach by IAS 8.[23]
It may be more appropriate to classify and disclose the amount of a provision or liability by IAS 37 by classifying it as a liability that cannot be measured reliably and is unlikely to be used economically to meet the obligation.

[23] Accounting policies, changes and errors in accounting calculations

Table 5. Recording and reporting of other tokens

| Type | Criterion | Debit | Credit | IFRS -15 Revenue | |
|---|---|---|---|---|---|
| | | | | Output method | Input method |
| **Other tokens** | IFRS -15 (paragraph 35,36,37) | Monetary asset | Revenue**** | Selected method | Selected method |

| Type | Criterion | Debit | Credit | IAS -37 Provision | |
|---|---|---|---|---|---|
| | | | | Initial measurement | Measurement after the reporting period |
| **Other tokens** | IAS -37 (paragraph 10) | Monetary asset | Provision***** | The present value of future money | Amortized cost |

Depending on the type of token, it can be recorded and reported in different ways, as shown in Table 2 to Table 5.

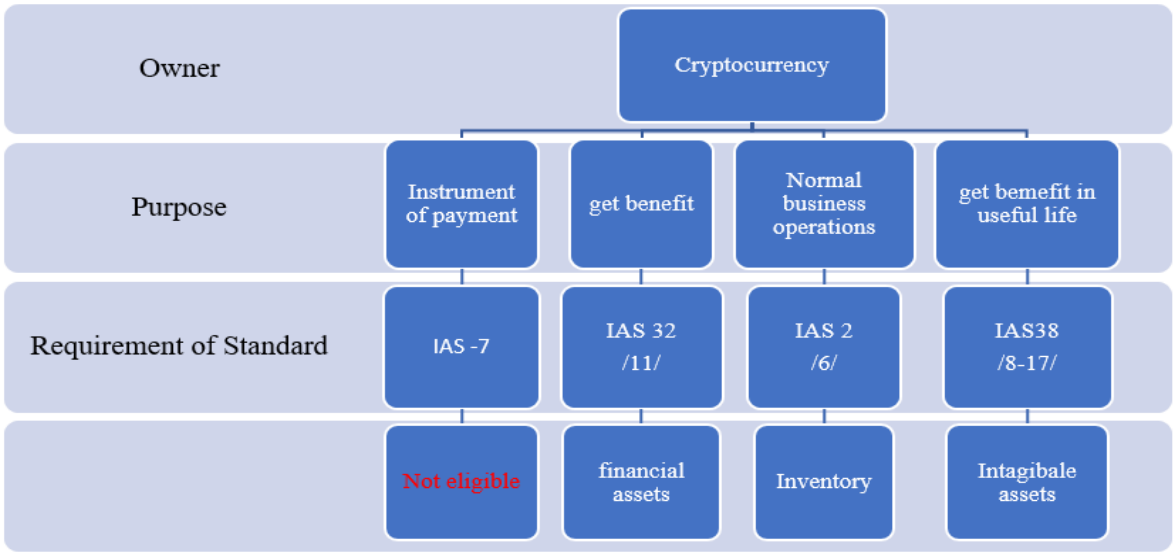


Figure 3. Type of recording for investor

However, the recording and reporting of the investor or token holder depend on its purpose, and the following standards may apply to its recording and reporting. These include:

1. IAS 7 Cash Flow Statements states that “cash equivalent assets are short-term, highly liquid investments that have minimum risk of change in value and are freely convertible into cash”. In addition to the above definition, money is a medium of exchange, and its issuer is legitimate. All of this suggests that cryptocurrencies serve as a medium of exchange and are freely convertible, but are not yet considered cash due to the high risk of changes in value and the fact that the issuer is not legally binding.
2. IFRS 32 Financial Instruments states that “a contractual right to receive money, another entity's equity instrument, money or other financial assets from another entity or to exchange them on favorable terms”. If the contract holder is liable, the cryptocurrency can be classified as a financial asset and recorded and reported as follows.

Table 6. Recording and reporting of financial instrument

| Type | Criterion | Debit | Credit | IFRS -9 Financial Instrument | |
|---|---|---|---|---|---|
| | | | | Initial measurement | Security |
| **Security, Equity, Token,** | IAS-32 (paragraph 11) | Financial asset | Monetary asset | The sum of the purchase price and the costs directly attributable to the purchase | The amortized cost, fair value The amortizedcomprehensive income, fair value at profit or loss |

3. IAS 2 Inventories define "materials and supplies that are held for sale in the ordinary course of business, that are in production for sale, and that are used in the production process or to provide services". Therefore, normal business operations in the cryptocurrency market include mining and brokerage companies.

Table 7. Recording and reporting of Inventories

| Type | Criterion | Debit | Credit | IAS 2 Inventories | |
|---|---|---|---|---|---|
| | | | | Initial measurement | Measurement after the reporting period |
| **All token** | IAS-3 (paragraph 6) | Inventory | Monetary asset | The sum of the purchase price and the costs directly attributable to the purchase | Cost and net realizable value / which is less / |

4. IAS 38 Intangible Assets is defined in the Standard as "Intangible and Identifiable Intangible Assets" and is the most appropriate definition of the nature of a cryptocurrency. Once classified as an asset, it should be expected to provide future economic benefits and be able to measure its value reliably.

Table 8. Recording and reporting of Intangible Assets

| Type | Criterion | Debit | Credit | IAS-38 Intangible Assets | |
|---|---|---|---|---|---|
| | | | | Initial measurement | Measurement after the reporting period |
| **Бүх токен** | IAS-38 (paragraph 8-17) | Intangible Assets | Monetary asset | The sum of cost, fair value, and eligible costs[24] | Accrued depreciation and impairment losses are deducted from fair value |

In addition, IAS 40 Investment Real Estate may be used, but the standard specifies that it is real estate, so it is a restriction on cryptocurrency recording and reporting.

## CONCLUSION

As a result of our research, we examined the recording issues of the cryptocurrency issuer or financier and the other party that owns or invests in the cryptocurrency.

Depending on the type of cryptocurrency, the financing entity may record and report financial liabilities, equity instruments, income, or provisions. Instead, an investor may classify the cryptocurrency in its financial statements as an intangible asset, inventory, or financial asset, depending on the purpose.

[24] IAS-38 (paragraph 57-62) eligible development costs

In practice, the main problem with recording and reporting is the lack of legal recognition. Based on our research, we suggest that soon major cryptocurrencies, including Bitcoin and Ethereum, could replace traditional currencies that are commonly used as payment instruments.
Further research would be more comprehensive if there were issues of taxation, registration, and cryptocurrency valuation in addition to the area of registration.

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**APPENDIX 1. CONCEPT OF LAWS AND REGULATIONS OF COUNTRIES**

| № | There is only a tax law | The law only prohibits money laundering and terrorist financing | The law prohibits taxes, money laundering, g terror finance, and ana, ing |
|---|---|---|---|
| 1 | Argentina | The Cayman Islands | Australia |
| 2 | Austria | Costa Rica | Canada |
| 3 | Bulgaria | Czech | Danish |
| 4 | Finland | Estonia | Japan |
| 5 | Island | Gibraltar | Switzerland |
| 6 | Инонгйль | Hong Kong | |
| 7 | Italy | Jersey | |
| 8 | Norway | Latvia | |
| 9 | Poland | Liechtenstein | |
| 10 | Romanian | Luxembourg | |
| 11 | Russian | Singapore | |
| 12 | Slovak | South Korea | |
| 13 | South Africa | | |
| 14 | Spain | | |
| 15 | Sweden | | |
| 16 | United Kingdom | | |

*Source: https://www.loc.gov/law/help/cryptocurrency/map1.pdf*

# SOME ISSUES THAT NEGATIVELY AFFECT THE ECONOMIC SECURITY OF FOREIGN DIRECT INVESTMENT

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**Abstract.** Foreign direct investment (FDI) is one of the most important factors influencing a country's economic development and foreign economic relations, and as a result, international competition to attract FDI is increasing. Attracting FDI is a must for developing and least developed countries, but it does not always bring the desired positive results. The use of FDI has many advantages for the country, but in some cases, depending on the investor and its purpose, it can adversely affect the economic security of the host country and give the investor a multifaceted advantage. In this sense, FDI is not limited to financial benefits, depending on who the investor is and their goals, but also allows for the creation of strategically important multi-faceted benefits, such as economic, political and geographical. In addition, domestic FDI surveys have not yet been conducted to identify and consolidate the potential threats to economic security.

**Keywords:** Home country, host country, hidden goals, risks, disadvantages

## INTRODUCTION

Foreign and domestic scholars define FDI as mutually beneficial. This is because FDI has the advantage of accelerating the economic growth of the host country, increasing employment, having a reliable source of capital, increasing tax revenue by stimulating competition in the domestic market, and new technical, technological, professional and marketing and management skills. creates an internationally approved. It also focuses on external and internal professional research, reports, and manuals on FDI, highlighting its positive significance and benefits. However, it is not enough to say that FDI always produces these positive results. Depending on the investor's intentions, FDI can pose a number of risks or adverse effects to the host country. So it is clear that there are pros and cons to anything. Although FDI cannot directly affect the economic growth of a host country, it can have a negative impact on social, cultural and economic development, reduce the efficiency of foreign direct investment, and increase the host country's dependence on foreign sources. carries. Depending on the nature of these, they may adversely affect the economic security of the host country, as well as national security. Economic security is very important for any country, and Mongolia needs to have a comprehensive security policy in 1.2.3 of the "National Security Concept of Mongolia". The law stipulates that national security is ensured by ensuring the interdependence of "situation", "internal security", "human security", "environmental security", and "information security". From this, it is reasonable to assume that economic security is a key factor that directly affects national security.

The investor seeks to achieve its overt and covert goals by conducting a series of studies and analyzes, developing a foreign direct investment policy plan, and making decisions based on the fact that it is possible to bring not only financial benefits but also many benefits now and in the future. Therefore, one of the main reasons for the negative impact of FDI is the conflict of interest between investors and recipients. This conflict of interest can have a number of causes, including economic, social, cultural, and political, and both parties have the goal of maximizing the benefits of the activity and achieving significant economic, social, and political results. In this sense, when one party is able to create a more advantageous situation for itself, the other party is exposed to many risks.

Therefore, any issue related to FDI itself requires constant innovation and research. The purpose of this study is to define the goals of FDI and to identify potential negative aspects of economic security based on the work of scientists and researchers. to develop and implement a plan, revise relevant laws, additionally propose to create a healthy and favorable legal and equal environment, and consider it as a kind of tool for further FDI research.

## 1. The purpose of foreign direct investment

In order to clearly define the purpose of FDI, it is appropriate to focus on two parts: foreign direct investor country[25] and foreign direct investor[26]. This is because foreign direct investor country and foreign direct investor targets are different. So is it a direct investor country in defining the purpose of FDI? or a direct investor? First of all, it is necessary to study and determine in detail. For foreign direct investors, mostly multinational corporations, the main goal is to gain an advantage or expand their business, expand the market, find new trade channels, strengthen their position in the international market, and improve their current and future profits. aimed at increasing revenue. In the case of foreign direct investment, however, it has a wider range of overt and covert goals, not just business. Foreign and domestic scholars and researchers have not done enough research on the negative impact of FDI on the economic security of the host country, which is reflected in the relatively small number of research papers and publications in this field. However, some foreign and domestic researchers have identified a number of issues that could adversely affect the economic security of the host country in areas that have been identified as negative aspects and potential risks of FDI. For example, Tadeusz Galeza and James Chan's "What is Direct Investment"[27] discusses the

[25] Foreign government

[26] Foreign business organization or legal entity, individual (multinational corporation)

[27] T.Galeza and J.Chan, International Monetary Fund (IMF), 2014, Coordinated Direct Investment

pros and cons of foreign investment, as well as the pros and cons of each investor. is intended. The article identifies a number of potential threats or risks associated with FDI, which can be detrimental to the economic security of the host country due to the failure to take appropriate action in a short period of time. Our domestic researchers, Dr. Z.Boroo, D.Batsukh, and N.Otgonsaikhan, also described the disadvantages, and a number of disadvantages that could negatively affect the economic security of the host country.

Investment is explained in different ways by foreign and domestic researchers and scientists, but so far a comprehensively defined, summarized theories and research work have not yet been published. For example, Professor (Phd) B. Sainjargal "Activities used to put assets into permanent circulation and generate revenue and increase value are considered investments"[28]. Professor (Phd) Ts. Ayurzana said "Investment is the key to development. An investment is capital that is invested in advance to increase profits by increasing the efficiency of production and services and increasing returns to the people".[29] According to The World Book Encyclopedia, "Investing means using the money to make a profit".[30] From this point of view, on the one hand, the ultimate goal of any investment is to make a profit, and to maximize profits. Profit, on the other hand, is not limited to financial benefits for a foreign direct investment country.

Common goals of foreign direct investment are:

- Location advantage or geography
- Cheap labor in developing and least developed countries
- International tax credit or duty-free conditions
- Using raw materials and natural resources to create advantages to maximize profits.

**2. The hidden goal of foreign direct investment**

Foreign direct investor is mainly focused on the advantages of location, resources, markets and costs, to increase its competitiveness in the world market, to get closer to big markets, to enter and occupy new markets. . This not only strengthens our international position, but also reduces costs and increases profits. For example, in the Mongolian mining sector, "Turquoise Hill Resources" and "Rio Tinto", a Canadian-invested company, operate large deposits with leading international reserves. Minerals are exported to China, Mongolia's southern neighbor, the world's largest market.

However for a foreign direct investor country, foreign direct investment sometimes has hidden strategic goals. As a country that invests abroad, there are many developed countries that have a leading position in the world in terms of economy, finance, technology, politics and military. As part of their strategic policy, they seek to invest directly in foreign countries in areas that are beneficial to their country. They often make direct investments in foreign investor country through their own businesses, multinational corporations (TNCs), banks, and financial institutions, and the links between them are relatively hidden. However, the investor country does not make direct investments in foreign countries. If necessary, it is represented by a joint venture between the two countries, its own investment fund and non-governmental organizations. For example, in the case of Mongolia, the Mongolian-Russian joint venture "Erdenet" was initially established with a 50:50 shareholding under an intergovernmental agreement dated November 22, 1973. In 1949, the Ulaanbaatar Railway Joint Stock Company was established with equal shares in Mongolia and Russia.

As a foreign investor country, it usually has a main goal and content to increase its international competitiveness, maintain and expand its influential position, and there are also hidden goals. The ulterior motive is to create a multi-faceted influence for the recipient country. In this sense, foreign direct investor countries are more interested in direct policy investment in certain sectors of

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Survey, Washington, https://www.imf.org/external/pubs/ft/fandd/basics/20_direct-invest.htm

[28] Б.Сайнжаргал "Санхүүгийн тайлангийн шинжилгээ" УБ. 1999. 77,78-р тал

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[30] The World Book Encyclopedia. Vol 10.1994. World Book, Inc. p-366

developing and least developed countries, which are of international economic, geopolitical, natural and other resources. For example, the construction of an oil refinery in the Vietnam region near the Chinese border eventually led to violence and the destruction of Chinese-owned factories (Sevastopulo et al., 2014). This was due to revelation of its intention to seize geopolitically important territory, Vietnam's oil reserves and gain influence in the oil sector.

Foreign direct investment countries invest in countries of high political and strategic importance for a number of specific purposes and reasons. For example:

- Establish, maintain and maintain a certain level of influence in countries with a strategic or advantageous geographical location internationally;
- Access to the markets of countries of high economic importance, gain a position, expand,
- Possession of limited natural or other resources in one's own country or internationally;
- International support from the recipient country; - In the future, economic cloning, which depends on the country in many ways,
- Acquiring other advantages (political and intelligence information).

The goals and motives of these investors can be considered as factors that negatively affect the national security of the host country through economic security. For example, China has invested in Tajikistan for many years to establish its influence in the economy, lending large sums of money to the country, owning 50 percent of its foreign debt, and purchasing some of its foreign debt (Jin Wu et al., 2021).

Although foreign direct investment has many positive effects on the recipient country, such as economic, financial, technical, and job creation, it has negative consequences. These include:

- Exporting more foreign currency than invested
- Restrictions on exports and imports
- Destruction of domestic resources
- Creating an unequal distribution of domestic finances
- Creating monopoly and oligopoly markets
- Obstruct the development of new technologies
- Adversely affect the industrial structure
- Becoming economically dependent on the outside world. [31]

From the above, it can be seen that foreign direct investment poses a high risk to the economic security of the recipient country. Other disadvantages include territorial integrity, economic stability, international competitiveness, natural resources and ecology. The ultimate goal of the above-mentioned foreign direct investment is profit, and the benefit is not only monetary, but also economic, foreign trade, markets, exports, imports, land, natural resources, as well as political, social, linguistic and cultural foreign policy. depending on the country.

Many countries around the world often limit foreign direct investment in areas of national importance, such as infrastructure, high-tech specialty products, chemicals and petroleum, defense, or the military, as part of national and economic security and strategic policies (Bruton, 1998). ). In this sense, not every government encourages foreign investment. In addition to restricting foreign investment, the government uses licensing arrangements for domestic investors and pursues policies to prevent foreign investment in key sectors of the country. Thus, foreign ownership and import activities are replaced by domestic production and enterprises (Bruton, 1998), which aims to support the economy, reduce dependence on other countries, and support industrialization (Prebisch, 1959). According to researcher Klugman, "Investors seek to invest in the most profitable sectors of the host country's economy by selecting high-value industries and services, a situation that is not welcomed by all host countries"[32].

[31] Н.Отгонсайхан “Олон улсын бизнес” УБ. 2009. 416, 417-р тал

[32] Prakash Longani, Razin Assaf, “How beneficial is foreign direct investment for developing

In addition to the above, potential threats to FDI from economic security include “creating barriers to domestic investment; Economic risks from political change; Negative impact on the exchange rate; Labor exploitation; New Century Economic Colonization; There may be downsides, such as a lack of financial control”.[33] These disadvantages vary from country to country, and can pose a major or minor threat to a country's social and economic security, leading to unrest, are important factors to consider. This study shows that the disadvantages associated with FDI are that any investment project implemented by the host country will not achieve the desired results, and in some cases will have a direct or indirect impact on the country's economic security and national security may occur.

## CONCLUSIONS AND RECOMMENDATIONS

To this day, it is still important for the recipient of the investment to take measures to prevent these disadvantages and minimize the risks. On the one hand, these disadvantages can create many advantages for foreign investors. On the contrary, it shows that it is possible to create many negative direct and indirect effects on the economic security of the host country.

Excessive dependence on a foreign entity by the host country could lead to a gradual loss of control over the entity. This has the negative effect of overly one-sided domestic production and services. In some cases, for a foreign investor and a recipient country, drastic cultural differences between regions can have negative social consequences. This suggests that certain social arrangements need to be made in advance before FDI can be accepted or approved.

Experienced recipients of investments use a multi-pronged approach to develop their own integrated policies and plans to prevent risks to economic security and national security. On the other hand, while maintaining the goal of supporting FDI, the government should improve the legal environment for investment, develop new rules and regulations, provide legal guarantees to investors, protect their rights and property, confiscate and not discriminate, and provide all possible government support. Multilateral steps are being taken to increase investment efficiency by streamlining registration and services and maintaining a smooth and stable tax environment. However, all of these are not effective tools. For developing countries, it is necessary to learn from international experience and use available methods to suit their own circumstances, but it is unlikely to be effective due to uncertain factors. Therefore, in order to avoid any risks associated with foreign direct investment, the host country should anticipate foreign investment projects, classify them by type, sector and size, create a skilled investment management staff, and have a unified plan tailored to each situation. The development of comprehensive measures and, if necessary, the restriction or prohibition of foreign direct investment in certain strategically important sectors will help to prevent and protect against any negative consequences for economic and national security, and will help to identify and effectively manage foreign investment. is an important solution. Otherwise, our country is likely to be highly profitable for foreign direct investors.

## SUMMARY

Foreign direct investment is not only a key factor in the economic development and foreign economic relations in any country, but there is also growing international competition to attract foreign direct investment. Although attracting foreign direct investment is necessary for developing and least developed countries, foreign direct investment does not always bring the desired results. Using foreign investment can bring many benefits to a country, but in some cases, foreign direct investment and its purpose can create many risks. Foreign direct investment, having determined that the investor has a multi-step research and development plan and a direct investment policy abroad, can bring not only financial benefits but also multilateral benefits now and in the future, to reach his explicit and implicit goals. try. Therefore, we aim to identify some of the implications of foreign direct investment.

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