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Factors Influencing Sustainability Communication of Communication Arts Students in Thailand

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Abstract

This study aimed to construct a causal relationship model of factors influencing communication arts students' qualification for sustainability communication (SC), examine the goodness-of-fit model with empirical data, and analyze the effect size of the causal relationship model in terms of influencing factors. Data were collected from 400 communication arts students using a set of questionnaires rated on a five-point scale. The results were analyzed using IBM SPSS Statistics 23.0 and LISREL version 8.80 to determine the causal relationship model. The findings revealed that the construct of the causal relationship model of factors influencing SC of these students comprised four latent variables measured from 12 observed variables. Moreover, the influencing factors were consistent with the empirical data at a good level considering the accordance index, which consisted of x2 = 13.153, df = 25, p-Value = 0.974, RMSEA = 0.000, Standardized RMR = 0.006, GFI = 0.996, and AGFI = 0.979. The causal relationship model of the factors affecting SC revealed that education sustainable development could have direct, indirect, and total effects; the knowledge-based journalist concept could have direct, indirect, and total effects; and communication art principles could have direct and total effects, respectively.

Keywords: Sustainability Communication, Education, Sustainable Development

1. Introduction

The United Nations introduced the "Transforming Our World: The 2030 Agenda for Sustainable Development," outlining 17 goals with 169 targets across economic, social, and environmental realms (UN, 2015, p. 23). Effective communication is pivotal to societal acknowledgment and awareness of the sustainable development goals (SDGs) (Jun & Kim, 2021; Pardo, 2018). Journalists play a crucial role, requiring expertise to prevent misrepresentation (Posetti et al., 2018; Richardson, 2017). Media is responsible for reporting the situation and environmental problems to the public. Environmental journalists need to know the environment to be able to analyze both problems and impacts and have a robust environmental attitude in reporting environmental news accurately without bias (Rögener & Wormer 2017; Williams 2015). Sustainable communication concepts help mass media analyze problems, causes, effects, and methods for solving environmental problems (Weder et al., 2022).

However, sustainability communications (SCs) face criticism for its focus on negative environmental solutions and are dominance by government and mainstream news sources (Dimitrinka, 2019). Greenwashing compounds this challenge, deceiving consumers regarding the businesses' environmental policies (Chen et al., 2018; Torelli et al., 2019). The lack of SC knowledge among journalists contributes to this issue (Wihbey & Ward, 2016). To address this, the development of communication art students in Thailand emphasizes education for sustainable development (ESD), communication art principles (CAP), and knowledge-based journalism concept (KbJC). This model aims to cultivate communicators capable of effectively delivering environmental messages, fostering sustainable partnerships, and contributing to Thailand's SDGs. The following sections delve into the challenges of SC, emphasizing the need for educational interventions to bridge existing knowledge gaps. Previous surveys found that products that claim to be environmentally or socially responsible are promoted using greenwashing, which have ambiguity and exaggeration affecting confidence in green contracts (Szabo & Webster, 2020; Lu

Zhang et al., 2018). Therefore, the process of producing the new generation of journalists needs to focus more on content taught in educational institutions. They need to be related to SC more than ever.

In the past, few communications programs offered journalism education in environmental science, and sustainability (Maslog, 2017; Smith et al., 2017; Menezes, 2018). Consequently, mass media lack the knowledge, understanding, and a positive attitude towards environmental and sustainability issues, similar to those seen in many developing countries, including Thailand (Asiksoy et al., 2020; Janoušková et al., 2019; Gadzekpo et al., 2018). Mass media tech knowledge, understanding, and lack a positive attitude towards environmental and sustainability issues are also noted in Thailand (Buaphauen, 2019). The development of factors influencing SC of communication arts students attempts to address this gap. With the application of the concept of ESD, principles of, we created a model that could help communication arts students, studying at Thailand universities, gain the knowledge, understanding, and positive attitudes towards environment and sustainability. The goal is development of a communicator capable of delivering environmental messages effectively, creating an important sustainable partnership for sustainable development in accordance with SGD 17, and contributing to Thailand's goals of future sustainable development.

2. Literature Review

SC is interdisciplinary and transdisciplinary concepts, critical context definitions, strategic methodologies, participatory practices, and more (Servaes, 2016; Servaes & Lie, 2020; Mauser et al., 2013). It also serves as a critical lens for examining media practices and helps analyze how media content impacts sustainability and identifying research gaps (Weder et al., 2021; Sustainability Communication as Critical Perspective in Media and Communication Studies—an Introduction, 10.1007/978-3-658-31883-3_1). Therefore, researchers examined factors influencing sustainable communication among communication arts students by developing a structural equation model (SEM). Based on a review of concepts, theories, and related studies, the SEM depicted in Figure 1 captures the intricate relationships between ESD, CAP, and KbJC (see Figure 1).

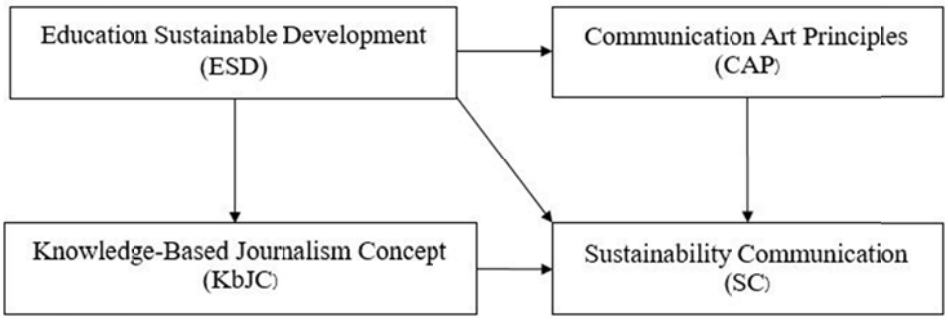

Figure 1. Model of factors influencing sustainability communication of communication arts students

The relationship between each factor showed in Figure 1 is described as followed:

2.1 Direct Effect of ESD to SC

Research in the past showed that ESD has been emphasized since the 1990s. The results demonstrated that students attending schools with an ESD profile were characterized by a stronger SC than students attending regular schools (Berglund, 2014). Normally, ESD change students' knowledge and attitudes to be more sustainable (Abner et al., 2019). This concept fills the sustainable development knowledge gap for students. Furthermore, the inclusion of ESD helps students understand sustainable development better (Acosta & Queiruga-Dios, 2022). Since the beginning of the United Nations International Decade on ESD (2005–2014), SC has incorporated ESD concepts (Rathod, 2020).

2.2 Indirect Effect of ESD to SC

There are two paths that indirectly affect SC. These is described as follows.

1) ESD to KbJC to SC

It has been proven that ESD could be applied to empower learners in universities and promote sustainable development in many situations (Riess et al., 2022). Therefore, this concept is the foundation of

knowledge-based journalism (KbJC). KbJC plays a vital role in bridging science and environmental reporting. The relationship between knowledge-based journalism and SC lies at the intersection of education, critical inquiry and responsible reporting. Both fields contribute to a more informed and sustainable world (Nisbet & Fahy, 2017).

2) ESD to CAP to SC

While ESD makes learners knowledgeable, CAP plays a crucial role in SC by emphasizing creativity, aesthetics, visual storytelling, and narratives through the application of ESD-based knowledge. CAP helps shape perceptions of environmental challenges and solutions. In SC, creative approaches, which come from CAP, could effectively enhance engagement and convey complex ideas, including ethical considerations. This leads to responsible communication that ensures transparency, avoids greenwashing, and promotes genuine communication. With this integration, SC could challenge the structure of power, amplify marginalized voices, and build creative scenarios to inspire positive change (Heras et al., 2021).

2.3 The Study's Contribution

SC, which originates as a diverse multidisciplinary field encompassing a wide array of perspectives (Akerlof et al., 2021), addresses the need for journalists with sufficient background knowledge in science, environment, economics, and social sciences to effectively cover environmental and scientific journalism (Witsen & Takahashi, 2018) and achieve the 17 SDGs set by the United Nations (UN, 2015). Therefore, according to the results of the study, graduate students engaging in interdisciplinary studies creatively address environmental topics and communicate with sufficient background, fostering social interaction and learning that could effectively cultivate environmental awareness (Jacobson et al., 2016).

3. Methods

This study employs quantitative research using structural equation modelling (SEM) as a platform for the multiple indicators and multiple causes (MIMIC) model.

3.1 Population and Sample

The population considered for this study included 48,920 undergraduate students in communication arts programs from 55 public and private universities. The sample size was determined using sufficiency criteria in the exploratory factor analysis and structural equation modelling analysis. Saris and Stronkhorst (1984) proposed the application of the LISREL model, which revealed that in statistical multivariate analysis, the sample size of every polynomial should be equal to or greater than 100. Lindeman et al. (1980) recommended a sample-size-to-parameter ratio of 20:1 using a total sample of 150–310 people, but not less than 400 (Schumacker & Lomax, 2004). For this study, the researchers calculated a sample size of 240 based on these parameters, which was lower than the specified criteria. Therefore, we increased the sample size to meet the minimum criterion of 400, to strengthen the LISREL model analysis. Sample randomization was performed using stratified sampling. Undergraduate students in the communication arts program from 55 institutions were grouped according to their locations into five regions: 8 in the north, 13 in the central, 6 in the northeast, 8 in the south, and 20 in Bangkok. First, we classify the population into hierarchies, with each level having the same characteristics. Researchers were aware of the biases in the data collection. We carefully composed the research questions to avoid questions that could lead to specific answers. Furthermore, none of the volunteers were allowed to complete the questionnaire. Therefore, all samples are generalized to the entire population (Florczak, 2022). Simple random sampling was then performed to obtain a sample group from the population of communication arts students in all five regions of the university, 80 people per region, totaling 400 people. The research objectives and data collection methods were explained to all participants to request their consent before data collection.

3.2 Tools

Questionnaires were used for data collection. This is divided into two parts.

Part 1. The status of the respondents consisted of items on gender, age, and school year (checklist).

Part 2. Causal relationship factors influencing SC. The items were rated on a 5-point Likert (1961). The questionnaires were classified as ESD factors (15 items), CAP factors (10 items), KbJC (20 items), and SC (15 items).

The reliability and validity of the questionnaire were assessed. For content validity, questions included both positive and negative statements. Five experts assessed the content validity and language used. For each item, experts were asked to determine their content validity score. Scores between 0.60 and 1.00 were obtained by

calculating the Index of Item Objective Congruence (IOC). Questionnaires were administered to 30 non-sampled participants. The discriminant power of each item was between 0.21 and 0.80, using Pearson's product moment correlation coefficient method. The α coefficients based on the Cronbach's method revealed that the total questionnaire had a confidence value of 0.96. Therefore, it is appropriate to use it to collect actual data.

3.3 Statistical Analyses

Descriptive statistics were performed using percentage (%), mean, standard deviation (SD), kurtosis, skewness, chi-square statistic, goodness of fit index (GFI), adjusted goodness of fit index (AGFI), root mean squared residual (RMR), root mean square of error approximation (RMSEA), and probability. Statistical calculations were performed using IBM SPSS Statistics 23.0, and the LISREL program version 8.40 was used to analyze the causal relationship model.

4. Results

Data were collected from 400 students in communication arts. Their general characteristics were as follows: 39.00% were male, 61.00% were female, and 40.50% were aged 18–19 years. The results of creating a causal relationship model of the factors influencing the SC of communication arts students are mentioned below.

Figure 2 reveals that the causal relationship model of the factors influencing the SC of communication arts students was consistent with the empirical data. The statistics are as follows: (Chi-square (x2) = 13.153, df = 25, p-value = 0.974, RMSEA = 0.000, standardized RMR = 0.006, GFI = 0.996, and AGFI = 0.979).

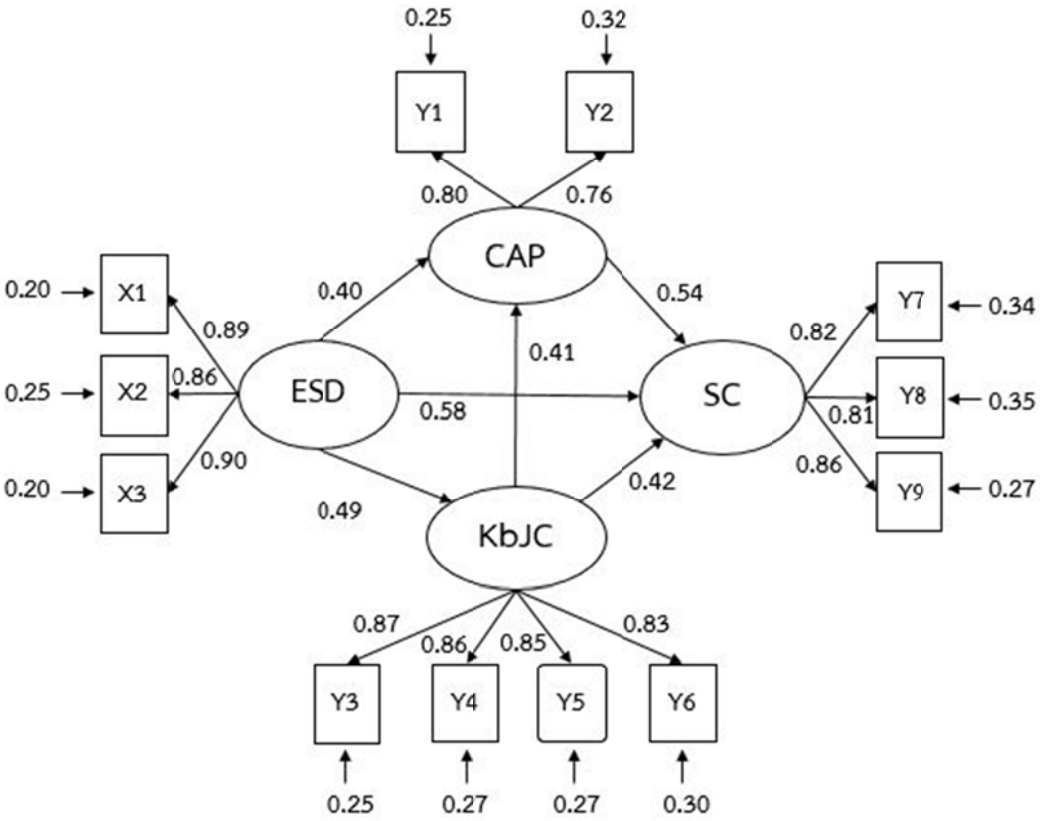

Figure 2. Causal relationship model of factors influencing sustainability communication of communication arts students

Note. ESD: Education Sustainable Development; X1: Sustainable Development Goals; X2: Sustainable Development; X3: Environmental Education Concept; CAP: Communication Art Principles; Y1: Knowledge of Communication Art, Y2: Knowledge of New media and Social media; KbJC: Knowledge-Based Journalism Concept; Y3: Fundamental of Science; Y4: Fundamental of Environmental; Y5: Knowledge of social sciences; Y6: Knowledge of economics; SC: Sustainability Communication; Y7: Communication about Sustainability; Y8: Communication of Sustainability; Y9: Communication for Sustainability

The results of the analysis of the effect size of the latent variable and the standard error of the causal relationship model of the factors influencing the SC of communication arts students are mentioned below.

4.1 Influence Values Affecting SC

1) ESD, which has a direct influence on all the latent variables. ESD had a direct influence magnitude of 0.582, an indirect influence magnitude of 0.382, and a total influence magnitude of 0.964 on SC at a statistically significant level of 0.05.

2) CAP variables have a direct influence on the latent variables of SC. CAP had a direct influence magnitude of 0.540 and a total influence magnitude of 0.540 on SC at a statistically significant level of 0.05.

3) KbJC directly and indirectly influences the latent variables in SC. KbJC has a direct influence magnitude of 0.423, indirect influence magnitude of 0.101, and total influence magnitude of 0.524 on SC at a statistically significant level of 0.05. Details are presented in Table 1.

4.2 Influence Values Affecting the CAP

1) ESD had a direct influence magnitude of 0.401 and a total influence magnitude of 0.401 on CAP at a statistically significant level of 0.05.

2) KbJC had a direct magnitude of 0.410 and a total influence magnitude of 0.410 on CAP at a statistically significant level of 0.05.

4.3 The Influence Value Affecting KbJC

1) ESD had a direct influence magnitude of 0.492 and a total influence of 0.492 on KbJC at a statistically significant level.

When considering the congruence of the tight data model, the congruence of the empirical data was also found to be good (chi-square (x^2) = 13.153, df = 25, p-value = 0.974, relative chi-square: x^2/df = 0.526, RMSEA = 0.00, standardized RMR. = 0.006, GFI = 0.996, AGFI = 0.979). The external variable (X) was in the range of 0.732–0.802, and the internal variable (Y) was in the range of 0.653–0.752, which is a good value. Latent variables were examined by considering the predictive coefficient (R-SQUARE) of each variable, which ranged from 0.693 to 0.872%. All latent variables explained 87% of the variance in SC.

Table 1. Direct, indirect, and total effects of latent variables, standard tolerance, and statistical value of the model

Variables	**Communication Art Principles (CAP)**			**Knowledge-Based Journalism Concept (KbJC)**			**Sustainability Communication (SC)**		
	TE	IE	DE	TE	IE	DE	TE	IE	DE
Education Sustainable Development (ESD)	0.401*	-	0.401*	0.492*	-	0.492*	0.964*	0.382*	0.582*
Communication Art Principles (CAP)	-	-	-	-	-	-	0.540*	-	0.540*
Knowledge-Based Journalism Concept (KbJC)	0.410*	-	0.410*	-	-	-	0.524*	0.101*	0.423*
Goodness of Fit	Chi-square = 13.153, df = 25, p-value = 0.974, RMSEA = 0.000, Standardized RMR = 0.006, GFI = 0.996, AGFI = 0.979								
Variables	Y1 Y2 Y3 Y4 Y5 Y6 Y7 Y8 Y9 X1 X2 X3								
correlation	0.741 0.682 0.752 0.731 0.722 0.693 0.661 0.653 0.732 0.793 0.741 0.802								
latent variable	CAP KbJC SC								
R-SQUARE	0.693 0.861 0.872								

Note. EE: TE = Total Effect IE = Indirect Effect DE = Direct Effect * Statistical significance at 0.05 level.

5. Discussion

In the past, the mass media in Thailand was unable to communicate sustainability effectively. This model will enable communication arts students in Thailand to have the ability to communicate sustainably and perform sustainable partnerships according to SDG 17 to help Thailand achieve its future SDGs. In this study, there were three interesting issues for discussion.

5.1 ESD

ESD is an education process, sustainable development is a concept responsive to needs and considers the

essential balance of the economy, environment, and society without sacrificing future generations (Kioupi & Voulvoulis, 2019). According to the findings of this study, ESD has the greatest influence on sustainable communication, consistent with the results of a study by Cebrián and Junyent (2015). They found that the study of a sustainable development framework was necessary and should be incorporated into the teacher education curriculum to foster sustainability awareness and develop sustainability education competencies among students. Benneworth et al. (2020) found that ESD courses integrated sustainable development into higher education curricula to enable young graduates to address SDGs. ESD is acknowledged as an important driver of positive change, empowering learners to take the actions and decisions needed to build an economically viable and just society that is respectful of both the environment and cultural diversity (Leicht, 2018). Regarding issues and trends in ESD, according to UNESCO, sustainable development education empowers all human beings to equip themselves with the knowledge, attitudes, economically viable skills, and values necessary to shape a bright and sustainable future. Art and design studies are multidirectional. Aesthetic delicacy and critical thinking are inherent in the nature of art and help students grow into environmentally and ecologically sensitive individuals and empathize with and respect society and the environment. In this way, students will be sensitized and eager to protect the ecosystem and live within the boundaries of nature (Özsoy, 2016).

5.2 CAP

From the findings, it was found that CAP had the second-highest influence on SC, consistent with CAPs that help create effective communication content (Grainger, 2017). Moreover, well-contented communication is an important engagement tool crucial for sustainable communication. To become effective communicators, it is important to collaborate with the community to create compelling content and narratives. Content and delivery channels must be relevant to the target group and stakeholders (Villar, 2021; Allen, 2015). There is also the significance of communication for development and social change (Servaes & Lie, 2020) and knowledge of new media, especially social media, which plays an important role in ensuring sustainable development (Druzhba & Orekhova, 2022).

5.3 KbJC

This is an initiative for journalists who might lack in-depth knowledge of the issues or news topics to be reported. Therefore, there might be the risk of inaccurate news sources. This makes journalists prone to misinterpreting relevant facts and background information (Dimitrova, 2017), especially regarding complex issues in science and environmental news reporting (Takahashi & Parks, 2018). A debate bridges ideological divisions and promotes wider consideration of policy options (Nisbet & Fahy, 2017) regarding the economic, social, and environmental aspects of SDGs.

Media plays an important role in our lives, follows us everywhere, and creates the understanding and meaning of many matters. Therefore, it is important to educate journalists on various topics, in addition to professional education. They should have a deeper understanding of the issues in charge, deal with them, and respond appropriately to such challenges. Sustainable journalism studies could meet these needs by focusing on journalistic academics and applying a holistic educational perspective (Vukić, 2019).

6. Conclusion

This framework offered applications for developing SC skills among communication arts students in Thailand, with the following targeted suggestions.

6.1 Education for Sustainable Development

Consider providing communication arts students with essential knowledge through ESD curriculum or training, empowering them to act as agents of sustainability, fostering partnerships aligned with SDG 17, and contributing to Thailand's SDG attainment.

Integrate findings into the design of the primary school/secondary school curriculum, including non-formal education.

6.2 Communication Art Principal

Collaboration between communication arts students and their communities should be encouraged to create engaging content, stories, and presentation channels tailored to the target audiences and stakeholders. Emphasize the application of new media and social media knowledge to ensure sustainable development.

6.3 Knowledge-Based Journalism Concept

Provide communication arts students with professional education to deepen their understanding of assigned issues. Focus on journalism academics with a holistic educational perspective to enhance their base.

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Authors' contributions

All authors have read and approved the final version of this manuscript. Specific author's contributions for this research are as follows: Mr. Kitisurakulchai conducted all literature, primary data collection, analysis, synthesis, and the drafting of this article. Dr. Woraphong was responsible for study concept and design. Dr. Krajangkantamatr and Dr. Sirirat were responsible for critical revision of the manuscript for important intellectual content.

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No known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Informed consent

Obtained.

Ethics approval

The Publication Ethics Committee of the Canadian Center of Science and Education.

The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

Provenance and peer review

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Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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