SCIENTIFIC CULTURE
www.sci-cult.com

SCIENTIFIC CULTURE, Vol. 12, No. 4, (2026), pp. 8880-8890
Open Access. Online & Print

DOI: 10.5281/zenodo.12426876

A PROPOSED MODEL OF COMMUNICATION GEOGRAPHY CONCEPTS IN GEOGRAPHY TEXTBOOKS FOR THE UPPER BASIC STAGE FROM THE PERSPECTIVE OF CURRICULUM DEVELOPERS IN JORDAN

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Received: 04/09/2025
Accepted: 03/02/2026

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ABSTRACT

The current study aimed to build Model of Communication Geography Concepts in Geography Textbooks for the Upper Basic Stage from the Perspective of Curriculum Developers in Jordan. The researchers employed a descriptive-analytical approach. To achieve the study's objective, a list of communication geography concepts was developed and its validity confirmed by a panel of experts from Jordanian university faculty. The reliability of the analytical instrument was verified using Holste's equation. Based on this list, the content of upper elementary geography textbooks was analyzed. The results showed that communication geography concepts were most prevalent in the tenth-grade textbook and least prevalent in the ninth-grade textbook. The researchers recommend using the communication geography concepts identified in this study to develop upper elementary geography textbooks.

KEYWORDS: Proposed model, Communications Geography concepts, Geography books, Upper Basic Stage, Jordan.

Introduction

Communications has witnessed tremendous development with the digital revolution, which has transformed the world and opened new horizons for instant and effective communication via the internet, smartphones, social media platforms, and artificial intelligence. Geography has been influenced by this communication evolution through its various branches, including the geographical location of regions, the infrastructure necessary for providing communication services, and the planning and distribution of communication networks (Allouche et al., 2015). This led to the emergence of communications geography in the last two decades of the 20th century. (Shenishen, 2010)

Arminen (2017) argues that communications geography is of great importance because it addresses a vital and influential topic in human life. Geographical factors such as location, topography, and the natural, economic, and social environment play a significant role in the emergence and development of communications. Nasser (2024) argues that communication geography is a crucial tool for enhancing the learning process by improving access to geographic information. Geographic information is essential for understanding the world around us and providing students with the necessary knowledge about the spatial distribution of various geographic phenomena. Communication geography facilitates access to geographic information by offering diverse and varied sources. Communication geography tools can be used to enrich and develop curricula by presenting more engaging and stimulating educational content, enhancing students' critical thinking and problem-solving skills, broadening their horizons, and increasing their global awareness.

Communication geography is defined as "a branch of human geography that studies the nature, distribution, and use of communication systems in geographic space. It examines the impact of geographic factors, such as location, topography, and climate, on the structure and performance of communication systems. It also studies how communication systems affect human societies, such as economic development and the promotion of democracy" (Adams, 2011, p. 44). Ghanem (2008) defines communications geography as "the study of the spatial relationships of communication phenomena, represented by the transmission of sound, images, or information. These phenomena relate to communication methods such as cables, stations, satellites, and telephones, and most of them are human-made phenomena".

Ali (2017, p. 161) defines it as "the study of the relationships between the information society in cyberspace, which is formed by various communication networks, and the human being within the spatial framework, on the one hand, and the reciprocal spatial influences between the organization and distribution of the components of the communication network infrastructure, on the other".

It is worth noting that geography is a subject rich in concepts, which are considered one of the fundamental components of geographical knowledge. These concepts enhance the level of knowledge and contribute to its organization. Furthermore, understanding the fundamentals of geography and its general structure depends largely on concepts. Therefore, learning geographical concepts and knowledge is fundamental to learning geography, as it contributes to forming clear mental images of scientific knowledge and its nature, thus facilitating its understanding and retention. (Bani Abdul Rahman & Al-Subhi, 2012)

Al-Barai (2009) explains that the study of geography aims to equip students with geographical concepts that help learners interpret various geographical phenomena. Therefore, geographical concepts are an important component of the geography curriculum content at different educational levels, as they help students practice many mental processes such as deduction and correlation. Comparison, discovering relationships, and organizing mental experiences are all crucial aspects of geography. This involves structuring the characteristics of natural and human phenomena into a coherent knowledge framework, thus making students' learning meaningful.

Therefore, geographical concepts are fundamental to teaching and learning geography, given the multiplicity and complexity of its branches. Students may find it difficult to master all of them. These concepts contribute to building students' geographical knowledge base, facilitating their understanding of geography as a diverse and interdisciplinary field, and enabling them to keep pace with advancements in geographical knowledge. (Mahmoud, 2017)

The topic of communications geography has garnered significant attention from researchers. For example, Nasser (2024) conducted a study in Egypt aimed at measuring the effectiveness of a proposed communications geography program based on an interdisciplinary approach in developing its concepts and self-learning skills among female student teachers in the geography department. The study employed a descriptive methodology in developing

the theoretical framework and research tools, and an experimental methodology in the field experiment. A list of communications geography concepts and a list of self-learning skills were compiled, along with the proposed program, and a test was conducted to assess the concepts. Communications, and the test of behavioral attitudes for self-learning skills, were applied before and after on a sample of (30) female students. The results showed that there were statistically significant differences at the level of (0.05) between the average scores of the female students in the pre and post applications of the test of communication geography concepts in favor of the post application, as well as statistically significant differences in the test of behavioral attitudes for self-learning skills as a whole and in each skill separately in favor of the post application.

The study by Al-Salmi and Al-Amiri (2023) in Jeddah aimed to develop a proposed educational program based on Geographic Information Systems (GIS) applications and measure its effectiveness in developing modern population concepts and interpreting population indicators. It also aimed to measure the correlation and predictive dependence between the growth rate of the two dependent variables. Data were collected using two instruments: a cognitive achievement test on modern population concepts and a classroom observation checklist for interpreting population indicators. A convenience random sample of 37 female students was randomly selected from the study population. The results revealed statistically significant differences ($p \leq 0.01$) between the mean scores of the study group on the pre-test and post-test for the two dependent variables in both the cognitive achievement test on modern population concepts and the classroom observation checklist for interpreting population indicators, favoring the post-test. The results also showed a significant (high) effect of the proposed educational program on the sample, with effect coefficients of 4.30 and 5.16 for the two dependent variables, respectively.

The results also revealed a significant effect of the proposed educational program on the sample. Al-Barbari and Al-Qasim (2023) in Egypt conducted a study aimed at developing digital literacy and the desire to use geography applications in light of secondary school geography requirements through a professional development program for geography teachers. The research employed a quasi-experimental pre- and post-test design with a single group. The research instruments included a knowledge test, a digital literacy scale, and an observation checklist for the performance aspects of using geography applications for professional geography. The results revealed statistically significant differences between the mean scores of secondary school students on the pre- and post-tests for both the digital geography teacher test and the observation checklist for the cognitive aspects of using geography applications, favoring the test.

Saleh and Saeed (2022) conducted a study in Egypt aimed at identifying the impact of a proposed geography program based on employing some technological innovations on developing concepts and values of intellectual security and technological awareness among students in the general diploma program in education. The researchers employed a descriptive methodology in the study and analysis phase. The research tools included an experimental treatment tool (the proposed program based on technological innovations) and a measurement tool (a test on intellectual security concepts, a scale measuring intellectual security values, and a scale measuring technological awareness). The primary research sample consisted of 24 students from the Geography Department of the General Diploma in Education at the Faculty of Education, Ain Shams University. The researchers concluded that the proposed program had a significant impact on developing intellectual security concepts and values, as well as technological awareness.

Meanwhile, Kadhim's (2020) study investigated the use of information and communication technology in learning and teaching geography, both in colleges and schools. This study adopted a systematic review methodology, critically reviewing and analyzing 5,131 publications. It revealed differences in geography learning and teaching across several countries, including the United Kingdom, the United States, and Australia. The study also demonstrated that geography teachers need to understand the relationship between Technological Content Educational Knowledge (TPCK) and geography materials to teach them effectively, such as by using Geographic Information Systems (GIS) in the classroom. Furthermore, this research review identified a significant gap in the use of information and communication technologies (ICTs) in geography education, for example, in the United Kingdom, the United States, and Australia.

The current study shares with previous studies its focus on employing ICTs in geography education and developing related concepts, such as those by Nasser (2024) and Kadhim (2020). However, the current study differs from these earlier studies in its focus on identifying communication geography concepts and revealing the extent to which these

concepts are incorporated into geography textbooks. Accordingly, the current study aims to fill a research gap by identifying communication geography concepts and the degree to which they are included in upper elementary geography textbooks from the perspective of curriculum developers in Jordan.

The Problem of the Study:

The importance of communication concepts in geography textbooks has become increasingly apparent with technological advancements, especially since communication geography is a relatively new concept in the field. Its inclusion in school curricula is essential to enhance students' awareness of the role of communication in shaping the relationship between place and people. The researcher's review of relevant educational literature and previous studies revealed a lack of Arabic and foreign studies addressing communication geography concepts and their integration into social studies textbooks in general, or geography textbooks in particular. Furthermore, the researcher's analysis of the content of upper elementary geography textbooks in Jordan revealed a limited and systematic approach to addressing communication geography concepts. Therefore, this study aims to investigate the current state of communication geography concepts in upper elementary geography textbooks, thereby contributing to content development and enhancing students' ability to keep pace with contemporary changes and understand the dimensions of modern geography.

Research Questions

The current study attempts to answer the following questions:

•What communication geography concepts should be included in upper elementary geography textbooks in Jordan?

• To what extent are communication geography concepts included in geography textbooks, as determined by content analysis?

The Importance of the Study:

The importance of this study lies in its focus on the concepts of communications geography, which students must acquire to meet contemporary challenges amidst rapid technological advancements. These concepts contribute to shaping students' personalities and shaping their bright future. Furthermore, the study's significance stems from its presentation of a proposed model for incorporating communications geography concepts into upper elementary geography textbooks in Jordan. This model enables readers to develop a knowledge framework that clarifies the importance, objectives, components, teaching methods, and learning resources of communications geography concepts. Consequently, the Jordanian Ministry of Education can utilize this proposed model to integrate communications geography concepts into geography textbooks, thus providing a clear knowledge framework for curriculum developers. The study's findings also benefit geography teachers by familiarizing them with the communication geography concepts that should be emphasized and instilled in students during the geography course. Additionally, the Ministry of Education's Training Directorate can leverage these findings when developing training programs for geography teachers, thereby enhancing their competence in teaching and effectively applying communications geography concepts in classroom practice.

Study Scope and Limitations:

•The study will be limited to the geography textbooks for the ninth and tenth grades of the first semester of the 2025/2026 academic year.

•The generalization of the results of this study will be limited to the study instruments and their validity and reliability.

Study Terms and Operational Definitions:

•**Proposed Model**: An organizational chart consisting of a list of communication geography concepts, learning outcomes, teaching strategies, learning resources, and assessment tools within a scope and sequence matrix for the ninth and tenth grades.

•**Communication Geography Concepts**: These are abstract mental constructs of a set of common characteristics related to the spatial distribution and use of communication systems, as well as the relationship between communication and various geographical factors and their impact on different aspects of human life. These concepts are adopted in building a proposed model of communication geography concepts in the geography textbooks for the upper elementary stage, from the perspective of curriculum developers in Jordan.

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Geography Textbooks: These are the textbooks prescribed for students in the ninth and tenth grades by the Ministry of Education in the Hashemite Kingdom of Jordan for the 2025-2026 academic year.

•**Upper Basic Stage**: This refers to students in grades 9 and 10 in the Jordanian Ministry of Education.

• **Curriculum Developers' Perspective**: This refers to the opinions of specialists at the National Center for Curriculum Development regarding the general framework of the proposed model for communication geography concepts in geography textbooks for the upper basic stage in Jordan.

Methodology and Procedures:

Study Methodology:

The researchers used a descriptive-analytical approach, analyzing geography textbooks for the upper elementary level in light of a communication geography concepts checklist they developed, as it was deemed suitable for the purposes of this study . The study population consisted of geography textbooks for the ninth and tenth grades in Jordan. The study sample was the same as the study population, with the textbook content distributed across two semesters: one for the first semester and one for the second semester of the 2025/2026 academic year.

Study Instrument:

The instrument was a communication geography concepts checklist (a textbook content analysis tool). It was designed according to the following steps:

1- Reviewing educational literature and previous studies that addressed communication geography, such as Nasser's study (2024) and Abdo's study (2017), to identify communication geography concepts appropriate for the ninth and tenth grades.

2- Examining the objectives and content of the ninth and tenth grade geography textbooks to determine the extent to which they addressed communication geography concepts.

3- Developing a list of communication geography concepts, including main and sub-concepts, distributed across three main domains: (1) Concepts related to communication networks, (2) Concepts related to communication systems, and (3) Concepts related to the impact of communication on society.

4- Validity of the content analysis instrument: To ensure the face validity of the instrument, its initial version was presented to a group of specialized reviewers from the faculty of Jordanian universities, specifically from the Curriculum and Instruction Department and the Geography Department in the Faculty of Arts, to confirm its suitability for its intended purpose. Modifications were made based on their suggestions.

5- Reliability of the content analysis instrument: To ensure the reliability of the analysis, the researcher and another researcher experienced in analysis and calculating inter-analyst reliability were involved in the process. Holstie's (1969, p. 68) reliability formula was used:

Reliability Coefficient = (Number of times agreed) / (Number of times disagreed) × 100%

The result was as follows:

Table (1)

Reliability coefficients of the analysis instrument for geography textbooks for the ninth and tenth grades

Class	**Study duration**	**Agreement**	**Disagreement**	**Agreement + Disagreement**	**Reliability Coefficient**
9th	the first	31	9	40	77.50%
9th	the second	103	10	113	91.15%
10th	the first	174	8	182	95.60%
10th	the second	79	4	83	95.18%

Table (1) shows that the values of the reliability coefficients of the analysis between the analysts using the Holste equation (Holste, 1969, p.68) for reliability ranged between (77.5%-95.6%), which are acceptable values according to the Holste criterion, as values that exceed (70%) are considered acceptable, while values that exceed (90%) are considered very high.

6- Content analysis of the ninth and tenth grade geography textbooks, divided into two semesters (first and second semesters) for the 2025/2026 academic year, as follows:

- The objective of the analysis was to identify the extent to which communication geography concepts are present in the ninth and tenth grade geography textbooks, based on a concept list prepared for this purpose.
- The scope of the analysis was defined as the geography textbooks for the ninth and tenth grades in Jordan, covering both semesters.
- The categories of analysis were defined as the communication geography concept list.

- The unit of analysis was determined by using the word and phrase that explicitly or implicitly represents the communication geography concept.
- The content, activities, assessments, and questions were subjected to the analysis process.
- Communication geography concepts were identified by assigning one occurrence to each word or phrase appearing in the content. This was done by creating a table and then classifying the number of times each concept appeared in each chapter of the textbook.
- The frequencies and percentages of the presence of each concept were calculated.

Study Results and Discussion:

The following are the results reached by the researchers:

First: Results related to the first question: What communication geography concepts should be included in geography textbooks for the upper elementary stage in Jordan?

To answer this question, a list of communication geography concepts was prepared by the researchers after reviewing relevant theoretical literature, studies, and research. The objectives and content of the ninth and tenth grade geography textbooks were also reviewed to determine the extent to which they addressed communication geography concepts. Specialists in curriculum development at the National Center in Jordan were consulted. Based on this, the communication geography concepts that should be included in geography textbooks for the upper elementary stage in Jordan were classified into three main areas: (First area: Concepts related to communication networks; Second area: Concepts related to communication systems; and Third area: Concepts related to the impact of communication on society). Table (2) illustrates this.

Table (2) List of communication geography concepts that should be included in geography books for the upper basic stage in Jordan.

Field	Main Concepts	Number	sub-concepts
Communication networks	infrastructure	**1**	**Servers**
		2	**Switches**
		3	**Transmission Media**
		4	**Wireless Networks**
	Communication network components	**5**	**Satellites**
		6	**Satellite Broadcasting**
		7	**Ground Stations**
		8	**Communication Towers**
		9	**Fiber Optic Cables**
		10	**Information Security**
		11	**Communication Protocols**
Communication systems	Remote sensing	**12**	**Satellite imagery**
		13	**Aerial imagery**
		14	**Space platforms**
		15	**Sensors**
		16	**Digital space**
		17	**Types of satellites**
		18	**Space transmission station**
	Geographic Information Systems	**19**	**Geographic Information Systems (GIS) Software**
		20	**Geographic Data Sources**
		21	**Digital Spatial Data**
		22	**Descriptive Data**
		23	**Geographic Databases for Communication**
		24	**Global Positioning System (GPS)**
		25	**GIS Applications**
		26	**Digital Cartography**

		27	**Spatial Analysis**
		28	**Big Data**
		29	**Artificial intelligence in communication**
The impact of communications	The impact of communications on society	**30**	**Communication and social interaction**
		31	**Education**
		32	**Culture**
		33	**Social development**
		34	**Economic development**
		35	**Global interaction**
		36	**Digital sustainability**
		37	**E-commerce**
		38	**Disaster management**
		39	**Misinformation**
		40	**Cyber fraud**
		41	**Globalization**
		42	**The digital divide**
		43	**Digital privacy**

The reason for selecting, focusing on, and finalizing these concepts after review by a panel of experts is to assist curriculum developers and planners in emphasizing and integrating them more fully into geography textbooks. These concepts also contribute to building a knowledge framework that clarifies the nature, components, and various dimensions of communications geography, keeping pace with the rapid advancements in communications and digital technology. Furthermore, these concepts help geography teachers identify and focus on the concepts related to communications geography when teaching geography courses, enabling them to instill these concepts in students and enhance their understanding of the role of communications in contemporary life and its impact on social, economic, and cultural aspects.

Question 2: To what extent are the concepts of communications geography available in geography books for the upper elementary stage in Jordan?
To answer this question, the content of the ninth and tenth grade geography textbooks for the first and second semesters was analyzed in light of the list of communication geography concepts prepared for this purpose. These concepts were extracted from the books, their frequency in each book was shown, all the frequencies were collected, their percentages were extracted, and their descending order was determined, as shown in

Table No. (3).

Field	Main Concepts	Sub-concept	repetition		the total	Percentage	Availability level
			Nine	**tenth**			
Communication networks	**Infrastructure**	**Wireless networks**	**25**	**36**	61	14.59%	High
		Satellites	**0**	**34**	34	8.13%	Medium
	Communication network components	**Ground stations**	**0**	**2**	2	0.48%	Low
		Information security	**5**	**0**	5	1.20%	Low
		Communication protocols	**1**	**0**	1	0.24%	Low
Communication	**Remote sensing**	**Satellite imagery**	**0**	**33**	33	7.89%	Medium

		Aerial photography	**0**	**2**	2	0.48%	Low
		Sensors	**1**	**2**	3	0.72%	Low
		Digital space	**1**	**9**	10	2.39%	Low
		Satellite types	**0**	**4**	4	0.96%	Low
	Geographic Information Systems	**Satellite transmission station**	**0**	**1**	1	0.24%	Low
		GIS software	**8**	**3**	11	2.63%	Low
		Geographic data sources	**0**	**3**	3	0.72%	Low
		Digital spatial data	**0**	**8**	8	1.91%	Low
		Descriptive data	**0**	**6**	6	1.44%	Low
		Geographic databases for communication	**0**	**3**	3	0.72%	Low
		Global Positioning System (GPS)	**2**	**6**	8	1.91%	Low
		GIS applications	**1**	**13**	14	3.35%	Low
		Digital cartography	**2**	**30**	30	7.66%	Medium
		Spatial analysis	**0**	**6**	6	1.44%	Low
		Big data	**1**	**1**	1	0.48%	Low
		Artificial intelligence in communication	**7**	**10**	10	4.07%	Low
The impact of communications	**The impact of communications on society**	**Communication and social interaction**	**0**	**4**	4	0.96%	Low
		Education	**25**	**21**	46	11.00%	High

		Social development	**0**	**12**	12	2.87%	Low
		Economic development	**7**	**4**	11	2.63%	Low
		Global interaction	**2**	**0**	2	0.48%	Low
		Digital sustainability	**13**	**42**	55	13.16%	High
		E-commerce	**3**	**0**	3	0.72%	Low
		Disaster management	**2**	**3**	5	1.20%	Low
		The digital divide	**0**	**2**	2	0.48%	Low
		Digital privacy	**1**	**11**	12	2.87%	Low
the total			153	265	418	100.00%	

To assess the availability of communication geography concepts in upper elementary geography textbooks, a statistical scale was adopted for the study sample. This scale divides the total percentage into three levels (high, medium, and low) using the following formula:

Class Range = (Highest percentage obtained by the concept – Lowest percentage obtained by the concept) / 3 (Abu Galion, 2016.(

Class Range = 14.59% - 0.24% / 3 = 4.78. Thus, the low level ranges from 0.24% to less than 5.02%, the medium level from 5.02% to less than 9.81%, and the high level from 9.81% to 14.59%.

Table (3) shows that most of the sub-concepts of communication geography for various fields and main concepts in the upper elementary geography textbooks have a low availability rate, i.e., less than (5.02%). The researcher attributes this low availability to the gradual inclusion of concepts in the curriculum, especially since some of the aforementioned concepts require a higher age group for students to understand them better. The sub-concept of wireless networks, within the main concept of infrastructure in the field of communication networks, had a high availability rate of 14.59%, making it the most frequently encountered concept. Similarly, the sub-concept of satellites, within the main concept of components of communication networks, had a moderate availability rate of 8.13%. The sub-concept of satellite imagery, within the main concept of remote sensing in the field of communication systems, had a moderate availability rate of 7.89%. The sub-concept of digital cartography, within the main concept of geographic information systems, had a moderate availability rate of 7.66%. Finally, the sub-concepts of education and digital sustainability, within the main concept of the impact of communications on society in the field of communication impact, had a high availability rate exceeding 9.81%. The high prevalence of certain concepts, according to the researcher, is attributed to their direct relevance to students' daily lives, as these concepts have become an integral part of their lived experience amid rapid technological advancement. These concepts also contribute to preparing students to cope with the demands of the digital age and to developing their awareness of the safe and effective use of technology. Furthermore, they constitute fundamental pillars that support the development of 21st-century skills, such as self-directed learning and digital thinking, which explains their emphasis in curricula and the frequent inclusion of these concepts at a high level.

Recommendations:

In light of the study's findings, the researcher recommends the following:

-Using the list of communication geography concepts identified in this study to develop geography textbooks for the upper elementary level.

-Integrating and organizing communication geography concepts not included in upper elementary geography textbooks, while maintaining balance and complementarity between these concepts and others, to ensure that no single aspect overshadows another.

-Conducting a similar study at the secondary level to assess the extent to which geography textbooks at this level incorporate communication geography concepts.

-Developing a framework for implementing the proposed model of communication geography concepts in upper elementary geography textbooks.

- Conducting a study to determine the level of awareness among upper elementary geography teachers regarding communication geography concepts, with a focus on teacher professional development.

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