

Impact of Farmers' Lifestyles in Rural Turkey on the Sustainability of Agricultural Production

Abstract

Introduction: This study investigates the impact of farmers' lifestyles on the sustainability of agricultural production in rural Turkey. The research focuses on how various social activities, such as meetings in places of worship, cafes, and agricultural fairs, and cultural practices influence agricultural decision-making processes and outcomes.

Methodology: Data were collected from 312 producers across five provinces in Turkey, representing different geographical and cultural regions. By linking these data with the socio-economic characteristics of the producers and their participation in social activities, the study employs a logistic regression model to identify the factors that influence farmers' choice of leisure activities.

Results: The findings reveal significant differences in agricultural performance, sales, and farm sustainability based on the types of social activities engaged in by farmers. Social interactions in cafes, places of worship, and agricultural fairs provide farmers with opportunities to share experiences and collectively address production constraints, thereby enhancing agricultural sustainability. The study highlights the crucial role of social networks and cultural values in shaping agricultural sustainability. Insights from this research can inform policymakers and stakeholders in developing targeted interventions to enhance sustainable agricultural practices in rural communities.

Conclusion: By focusing on the social and cultural dimensions of farming practices, this study contributes to a comprehensive understanding of how farmers' lifestyles influence the sustainability of agricultural systems. The results underscore the importance of fostering social networks and community interactions to promote sustainable agricultural practices and rural development. The integration of social and cultural factors into agricultural policy and practice is essential for achieving long-term sustainability.

Keywords: religiosity, lifestyle, cultural and social activities, sustainability, Turkey

1. Introduction

Agriculture has been of crucial importance to the survival and development of humankind throughout history (Godfray et al., 2010). In contemporary times, as food security emphasizes the importance of sustainable agricultural practices, the economic, social, and ecological dimensions of agriculture have become increasingly evident (Foley et al., 2011). Understanding how farmers' lifestyles affect the sustainability of agriculture is of great scientific and social importance. With rapid urbanization, more than 180,000 people move

into cities every day. The Organisation for Economic Co-operation and Development (OECD) predicts that by 2050, the world's population will reach 9 billion, with 70% living in urban centers rather than rural areas (Unlukal et al., 2024). The United States Department of Public Information reports that this population growth will add about 2 billion people over the next 30 years, increasing the current population of 7.7 billion to 9.7 billion by 2050 (RDIP, 2019).

However, the aging population, especially in rural areas, significantly impacts agricultural and rural development in Turkey. As farmers age, they devote less time to agricultural activities and more to family and social engagements. This shift in focus can lead to changes in agricultural productivity and sustainability, as older farmers may be less inclined to adopt new technologies or practices (Burton et al., 2003). The socio-economic characteristics of rural populations, including age, education, and social networks, play a crucial role in shaping agricultural practices and outcomes (Ellis, 2000). In Turkey, the aging farming population poses significant challenges to maintaining agricultural productivity and sustainability. Research has shown that older farmers are less likely to engage in innovative practices and may face difficulties in adapting to changing market conditions (Kuehne, 2013).

Furthermore, cultural and religious values significantly influence farming practices and the adoption of sustainable agricultural methods. Farmers' decisions are often shaped by their social and cultural environment, which can either facilitate or hinder the adoption of new practices (Fischer & Qaim, 2012). In rural Turkey, where traditional values and social networks play a dominant role, understanding the impact of these factors on agricultural sustainability is critical.

Farmers have been categorized into three groups based on their lifestyles: those who spend their leisure time predominantly in places of worship, those who frequent cafes, and those who engage in both activities. These social activities provide opportunities for farmers to discuss and reflect on agricultural and rural development issues, potentially influencing their agricultural practices and sustainability. Social interactions play a significant role in the diffusion of agricultural innovations and the collective management of resources (Rogers, 2003). The role of social capital in enhancing agricultural productivity has been widely documented, highlighting how networks and community engagements can lead to better resource management and knowledge sharing (Pretty, 2003).

This study aims to assess the relationship between the lifestyle of elderly farmers in Turkey and the sustainability of agricultural production within the context of rural development. Data were collected from 312 producers in five diverse provinces in September 2019. By linking these data with the socio-economic characteristics of the producers and their participation in social activities, the study employs a logistic regression model to identify the factors that influence farmers' choice of leisure activities.

Findings indicate that production outcomes, sales, and farm sustainability vary according to the lifestyle choices of farmers. Social interactions in cafes, places of worship, and agricultural fairs offer farmers the chance to share experiences and collectively address production constraints, thereby enhancing agricultural sustainability. This research fills a critical gap in the literature on the interplay between lifestyle and agricultural sustainability, providing insights for policymakers aiming to support rural development. Previous studies have shown that participation in social activities can significantly influence farmers' adoption of sustainable practices and innovations (Klerkx et al., 2010; Pannell et al., 2006).

By focusing on the social and cultural dimensions of farming practices, this study contributes to a comprehensive understanding of how farmers' lifestyles influence the sustainability of agricultural systems. The results underscore the importance of fostering social networks and community interactions to promote sustainable agricultural practices and rural development. The integration of social and cultural factors into agricultural policy and practice is essential for achieving long-term sustainability (Leeuwis & Aarts, 2011).

2. Methodology

This study employs data collected from five provinces in Turkey, selected to represent the country's geographical and cultural diversity: Bolu (Western Black Sea region), Çorum (Central Black Sea region), Erzurum and Kars (Eastern Anatolian regions), and Sivas (Central Anatolian region). These regions were chosen based on their significant elderly populations, which are crucial for understanding the sustainability of agricultural activities. The focus on areas with a high density of individuals aged 65 and over aims to highlight the importance of agricultural sustainability for the older farming population.

Data were gathered through surveys conducted with 312 producers in September 2019. The survey included detailed questions on socio-economic characteristics, leisure activities, and

agricultural practices. The sample was randomly selected to ensure representativeness of the diverse economic and socio-cultural backgrounds within the villages. This method aligns with best practices in survey research, ensuring that the sample accurately reflects the broader population (Dillman, Smyth, & Christian, 2014).

The socio-demographic characteristics of the participants were analyzed using descriptive statistical tools, such as averages and percentages. This analysis provided a clear picture of the general characteristics of the surveyed population and the distribution of various socio-economic parameters. Descriptive statistics are essential for summarizing the basic features of the data and providing a straightforward overview of the sample (Fowler, 2014).

By linking these data with the socio-economic characteristics of the producers and their participation in social activities, the study provides a comprehensive analysis of how these factors influence agricultural productivity and sustainability. The use of a logistic regression model allows for the identification of factors that significantly impact farmers' choice of leisure activities and their subsequent effects on agricultural outcomes. Logistic regression is a robust statistical technique often used in social sciences to model binary outcome variables and understand the relationship between independent variables and the dependent variable (Hosmer, Lemeshow, & Sturdivant, 2013).

To examine the factors influencing the choice of leisure activities among the elderly farming population, a logistic regression model was employed. The logistic regression model is a well-established method for analyzing determinant factors and was chosen for its ability to explain choices based on multiple variables (Hosmer, Lemeshow, & Sturdivant, 2013). The model maintains the estimated probability between 0 and 1, which is suitable for this type of determinant analysis.

The logistic regression model was specified as follows:

$$P(Y_i) = \frac{1}{1 + e^{-(\beta_0 + \beta_1 \text{Gender} + \beta_2 \text{Age} + \beta_3 \text{Marital Status} + \beta_4 \text{SSP} + \beta_5 \text{OAL})}}$$

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Where:

- $P(Y_i)$ is the probability that producer i participates in social activities.
- β represents the coefficients to be estimated.
- Gender, Age, Marital Status, SSP (Survival Status of Spouse), and OAL (Own Agricultural Land) are the explanatory variables.

The dependent variable, social activities, was categorized into two groups: those who spend most of their free time in mosques or cafes and those who participate in other social activities. The independent variables included gender, age, marital status, survival status of spouse, and ownership of agricultural land. These variables were selected based on their relevance to the lifestyle and socio-economic conditions of the producers.

Data analysis was performed using SPSS 23 statistical software, which provided results for descriptive statistics, cross-analyses, and logistic regression. This approach allowed for a detailed understanding of the socio-demographic characteristics of the participants and the factors affecting their choice of leisure activities. The use of SPSS is standard in social science research due to its comprehensive range of statistical tools and ease of use (Pallant, 2013).

The study's methodology, with its robust statistical analysis and comprehensive survey design, offers a unique perspective on the relationship between farmers' lifestyles and agricultural sustainability. Despite the limited budget and resources, the research provides valuable insights into the socio-cultural dynamics of rural agricultural practices in Turkey.

3. Results

3.1. Characteristics of respondents

The producers studied are predominantly men and mostly opt for moments of discussion around lots of coffee. The average age of producers is 61. Producers aged between 56 and 65 are the dominant ones in the sample. In this age category, producers opting for moments of discussion around heaps of coffee are strongly represented at a rate of 45.0%. Additionally, 19.4% of producers prefer participating in other social activities. Almost 70% of producers were born in rural areas and live there with their families, while the remaining 30% live in cities and their suburbs. Regarding education levels, 46.5% of producers have a primary school level or less, 25% have secondary education, and only 5.1% have a university degree. The majority of producers (93.3%) are married. It was highlighted that most producers own

the land they cultivate. Married producers are those who participate the most in leisure activities highlighted in this study. Half of the producers are retired and receive pensions, and 86.2% enjoy government social assistance for the elderly. Most of them prefer to participate in other social activities ($p = 0.000$).

These findings are consistent with previous research indicating that older, married, male farmers dominate agricultural activities in many rural settings (Burton et al., 2003). The high participation in social activities like coffee meetings and religious gatherings underscores the importance of social networks in rural communities. These networks provide a platform for exchanging knowledge and experiences, which can influence agricultural practices and sustainability (Pretty, 2003). The high percentage of primary school graduates among those frequenting mosques suggests a correlation between lower education levels and participation in religious activities. Conversely, higher education levels are more common among those engaging in other social activities, reflecting a trend towards diversification of social engagements with increasing educational attainment (Vanclay, 2004; Rogers, 2003).

Table 1 presents the socio-economic characteristics of producers, highlighting differences based on their preferred social activities.

Table 1: Socio-Economic Characteristics of Producers

Socio-Economic Parameters	Description	Mosque (%)	Coffee (%)	Other Social Activities (%)	P-value
Education	Primary school graduate or less	76.8	64.3	54.5	0.000
	Secondary education	15.2	23.2	27.3	0.045
	University degree	8.0	12.5	18.2	0.032
Marital Status	Married	95.8	92.9	100.0	0.550
	Widow	4.2	3.6	0.0	0.358
Health	With chronic illness	26.7	19.2	60.0	0.046
Additional Income	Pensionable	53.3	39.3	72.7	0.000
Transfer of Ownership	Goods-sharing	10.8	14.8	0.0	0.011
Use of NICTs	Internet users every day	20.7	32.1	9.1	0.000

Source: Survey results, 2019

3.2. Types of Leisure and management methods

Table 2 indicates that 60.3% of producers spend their leisure time in mosques, 35.3% in coffees, and 4.4% in other social activities. The accuracy rate in their agricultural decisions is highest among those who gather in mosques (91.7%) and coffees (89.1%), compared to other social activities (74.0%). The overall accuracy rate across all leisure activities is 78.0%.

These findings suggest that the social context in which farmers interact has a significant impact on their decision-making processes and agricultural outcomes. Producers who participate in discussions in mosques and coffees appear to benefit from higher accuracy in their decisions, likely due to the supportive and collaborative environments these settings provide. This aligns with the theory of social capital, which posits that strong social networks and community engagement enhance the sharing of information and resources, leading to better collective outcomes (Putnam, 2000).

Table 2: Distribution of Producers According to Types of Leisure

Type of Leisure	Number	Percentage (%)
Mosque	188	60.3
Coffee	110	35.3
Other social activities	14	4.4
Total	312	100

Source: Survey results, 2019

The management methods of farms by producers, as well as their appreciation of living conditions, were evaluated using a comparison test (Table 3). These tests highlight the relationship between socio-economic parameters and the types of leisure activities producers engage in during their free time. The analysis reveals that leisure activities are influenced by socio-economic characteristics, the types of decisions made in farm management, the proportion of young adults in the producer's family, and their satisfaction with the economic performance of their farm in recent years.

Table 3: Mean Comparison Test (a)

Variable	Description	Mosque (%)	Coffee (%)	Both Mosque and Coffee (%)	P-value	Difference Between Groups
Self-decision	Investment decisions	70.3	78.6	50.0	0.000	Yes
Status	Saving decisions	64.8	67.9	54.5	0.000	Yes

Variable	Description	Mosque (%)	Coffee (%)	Both Mosque and Coffee (%)	P-value	Difference Between Groups
	Financial decisions	61.8	78.6	54.5	0.000	Yes
	Future decisions	59.6	75.0	45.5	0.000	Yes
	Business decisions	60.7	71.4	45.5	0.000	Yes
	Marketing decisions	60.7	78.6	45.5	0.000	Yes
	Decisions regarding the production pattern	68.5	67.9	36.4	0.000	Yes
	Outside business decisions	65.2	67.9	36.4	0.000	Yes
Abandonment of Agricultural Land	Leaving the land empty due to old age	21.3	14.3	12.3	0.008	Yes
Young People in the Family	Young people not intending to continue agricultural activities	50.6	35.7	10.0	0.000	Yes
Problems After Ownership Transfer	Problems faced	5.6	0.0	0.0	-	-
Efficiency of the Farm	Efficiency under the care of children	50.0	25.0	60.0	0.000	Yes
Future Plans	Plans to expand business, buy machinery, etc.	94.6	96.4	100.0	0.690	No
	Did not get a production loan	42.5	35.7	80.0	0.000	Yes
	Did not get a consumer loan	37.6	33.3	80.0	0.000	Yes
Agricultural Loans	Avoided labor-intensive productions	44.6	60.7	54.5	0.000	Yes
	Did not use agricultural machinery	33.3	25.0	54.5	0.000	Yes
	Did not work in the field	26.7	25.0	63.6	0.000	Yes
	Difficulties due to old age	29.2	10.7	9.1	0.000	Yes
Challenges Faced	Bureaucratic procedures	27.0	46.4	45.5	0.002	Yes
	Use of new models of tools and machinery	15.7	21.4	45.5	0.054	Yes

Source: Survey results, 2019

The analysis indicates significant differences between the groups (mosque, coffee, and both) in various decision-making aspects, such as investment, savings, and financial decisions. Producers who engage in discussions in coffees tend to make more proactive decisions compared to those who predominantly attend mosques or combine both activities. Producers attending mosques or both types of leisure activities also make important decisions, but the extent and nature of these decisions differ. For instance, those who gather in mosques face more challenges related to abandoning agricultural land due to old age and the lack of young people willing to continue agricultural activities in their families.

By understanding these differences, policymakers and agricultural extension services can tailor their support to address the specific needs and challenges faced by producers based on their preferred leisure activities. This targeted approach can enhance the overall sustainability and productivity of rural agricultural communities.

Table 3b shows the results of the mean comparison test for life satisfaction status among the three groups. The analysis indicates no significant differences in life satisfaction levels among producers who frequent mosques, coffees, or both. However, there is a marginal difference in the perception of living conditions being perfect among those who engage in both activities.

By examining the impact on managerial decisions, succession, and innovation, we can better understand how cultural and social dynamics influence agricultural production. Producers who frequent coffees are more proactive in decision-making, while those who engage in both mosque and coffee activities show the lowest rates of land abandonment and the highest use of agricultural machinery. This analysis helps identify specific areas where support and interventions can enhance the sustainability and productivity of rural agricultural communities.

From a sustainability point of view, it emerges that agricultural innovation and succession are more impacted by aging within the farmer group with a preference for religious hobbies.

Table 3: Mean Comparison Test (b)

Type of leisure						
Variables	Mosque	Coffee	Bothmosque and coffee	Chi-Square	P value	Differencebetween groups

Life satisfaction status	Averagerank	Averagerank	Averagerank			
I am satisfied with my life	64,08	64,39	75,05	0,84	0,66	No
I have achieved the important things that I wanted to have in my life	64,59	61,55	71,95	0,63	0,73	No
Many aspects of my life met my ideals.	63,48	66,57	67,85	0,26	0,88	No
If I were born again, I wouldn't change anything in my life	62,09	63,02	90,30	5,52	0,06	No
My living conditions are perfect	62,73	62,61	85,75	3,84	0,15	No

Source: Survey results, 2019

Table 4 indicates that the reasons young people do not continue agricultural activities do not significantly differ among the three groups (mosque, coffee, both). This suggests that factors such as the importance of state support, sufficient income, and better living standards in other sectors are perceived similarly across all groups. This uniformity underscores the need for broader policy interventions to address these common concerns, regardless of the specific social activities farmers engage in.

Table 4: Mean Comparison Test (c)

	Type of leisure			Chi-Square	P value	Difference between groups
	Mosque	Coffee	Bothmosque and coffee			
Reasons why young people do not continue agricultural activities	Averagerank	Averagerank	Averagerank			

Importance of State support for agricultural production	31,81	32,00	36,50	0,15	0,93	No
Stating that it is important or very important for agriculture to provide sufficient income	31,58	32,50	23,50	0,73	0,69	No
Stating that obtaining knowledge and skills in agricultural matters is important	32,24	29,96	38,25	0,44	0,80	No
Stating that the difficulties encountered in finding / obtaining loans are important	31,11	30,83	29,50	0,02	0,99	No
Stating that it is important to be risky in agricultural activity	30,11	29,04	33,25	0,15	0,93	No
Stating that it is important that they do not like farming	31,89	24,42	35,00	2,06	0,36	No
More training opportunities in sectors other than agriculture	32,45	25,71	28,75	1,72	0,42	No
Stating that better living standards in sectors other than agriculture are important	31,60	30,42	20,50	1,08	0,58	No

Source: Survey results, 2019

3.3. Analysis of determining variables

A logistic regression analysis was carried out to assess the factors affecting the decision of producers in the choice of social activities they carry out (Table 5). The responses to the question of what they like to do in their spare time were coded as the dependent variable. The responses were categorized into two groups: those who preferred "going to the mosque/place of worship or to the coffee" and those who opted for other social activities, such as outings to towns with neighboring producers, participating in agricultural fairs, and other social activities. These latter formed the second group. During these different meetings, senior producers address issues related to agricultural and rural development. As independent variables, gender, age, education, residence, marital status, spouse's survival status, number of marriages, number of children married, number of children living together, retirement status, state aid, household status, type of farming, living conditions, and monthly income were considered.

Table 5: Result of the Estimation Model

Variable	Coefficient	Standard Error	Wald statistics	Sd	P-value	Exp(B)
Constant	-2.79	1.21	5.33	1	0.02	0.28
Gender	1.32	0.52	6.40	1	0.01	3.75
Age	-0.03	0.01	6.62	1	0.01	0.97
Marital status	2.60	1.14	5.18	1	0.02	13.43
Survival status of spouse	-1.75	0.88	4.02	1	0.05	0.17
Own agricultural land	1.17	0.59	4.00	1	0.05	3.23

Source: Survey results, 2019

The analysis reveals that the decision of producers in the choice of social activities they carry out is influenced by variables such as gender, age, marital status, spouse's survival status, and the area of land held by the producer. The regression model is statistically significant and explains 78% of the type of leisure activity for which the producer opts ($p = 0.000$ and $R^2 = 0.78$).

Gender: The gender variable has a positive and significant effect at the 5% threshold on the producers' decision in choosing the leisure activities for which they opt. This result indicates that men are more willing to participate in social activities such as agricultural fairs and

various events compared to female producers. This significant male participation is explained by the fact that men are mostly the heads of farms, responsible for developing strategies to optimize farm performance. Similar findings have been reported by Ellis (2000), who noted that male farmers are often more engaged in community and market activities.

Age: The age variable has a negative and significant effect at the 5% threshold on the producers' decision in choosing the leisure activities for which they opt. Older producers participate less in agricultural fairs and events, preferring discussion sessions around coffee. Agricultural fairs require significant dynamism and responsiveness, which may be challenging for older producers given their state of health. This is consistent with the findings of Kuehne (2013), who highlighted that older farmers are less likely to adopt innovative practices and participate in dynamic social events.

Marital Status: The marital status of the producer has a positive and significant effect at the 5% threshold on the producers' decision in choosing the leisure activities for which they opt. Widowed and single producers are more willing to participate in agricultural fairs and events, which provide opportunities to meet other producers and acquire new knowledge for farm development. This aligns with the observations of Fischer and Qaim (2012), who found that social activities provide crucial support and networking opportunities for single and widowed farmers.

Survival Status of Spouse: The spouse's survival status has a negative and significant effect at the 5% level on the producer's decision. Producers whose spouses are not alive are more likely to participate in social activities, as these events provide social support and opportunities to network. This is in line with the findings of Klerkx and Jansen (2010), who noted the importance of social networks in providing support for farmers facing personal challenges.

Own Agricultural Land: The area of land held by the producer has a positive and significant effect at the 5% threshold on the producers' decision in choosing leisure activities. Producers with larger land areas are more inclined to participate in agricultural fairs and various events to learn about financing options and new agricultural techniques. This finding is supported by the work of Rogers (2003), who highlighted the role of land ownership in influencing farmers' participation in innovation and extension activities.

4. Discussion

This study reveals a significant difference in agricultural performance and practices based on the social activities practiced as leisure activities by married farmers who participate the most in these activities. The observed differences between groups in terms of decision-making confirm that social activities shape the decision-making process and impact the outcomes. One explanation for this difference is that decision-making is a process influenced by the social network and societal culture (Nutt, 1988). In this context, O'Rourke (2007) noted that the diffusion of technology related to the dairy sector was more successful through cooperatives, which were better received by certain breeders belonging to the Protestant religion than by those of the Catholic religion. O'Rourke reached this conclusion by examining the determinants of the propensity to cooperate in the Irish dairy industry in 1906.

Kalliny (2007), in his theoretical investigation of the impact of cultural and religious values on innovation adoption, argues that the main religions could have a significant impact on the adoption of specific innovations based on religious teachings and requirements. According to Kalliny, collectivism (the strong presence of ties between the individual and society) and high hierarchical distance (distribution of authority or power) are some of the key elements through which religion impacts innovation. Abdullah (2011) also found that religious consumers are less likely to adopt innovations than less religious and moderately religious individuals. It is important to note that the impact of religious values on innovation adoption largely depends on the characteristics of the innovation. For example, innovations deemed contrary to religious teachings by religious leaders are more likely to be rejected in favor of other innovations (Kalliny, 2007).

The explanation provided by these authors is the time needed to make a reliable inquiry into whether the innovation is religiously favorable or forbidden. Customs shape agricultural practices in Turkey. The way in which culture and religion influence decisions also explains some farmer behaviors frequently observed during data collection. Participants in our survey also observed certain practices drawn from their customs, such as abandoning part of the harvest in the fields for birds and other animals, not using pesticides to preserve the life of

living beings in the ecosystem, not using credit because of the haram nature of interest, and not being interested in certain activities such as pig breeding. This can be explained by the fact that religious people are generally more rigorous regarding aspects of religiosity and scrupulously follow religious prohibitions. They take more time to evaluate an innovation (be it a product or a service), and only if it conforms to religious precepts will they adopt and disseminate it; if it doesn't, they won't (Abdullah, 2011).

5. Conclusion

This study reveals that there is a difference in agricultural performance and practices depending on the social activities farmers engage in during their free time. The significant differences observed in the decisions made between groups confirm that social activities shape the decision-making process and influence the results obtained. One reason for this difference is that decision-making is a process in which social networks and social culture play an important role. This aligns with Nutt's (1988) assertion that social networks significantly impact decision-making processes.

Another important finding, frequently encountered in our study, concerns certain practices stemming from farmers' cultural and religious beliefs. We observed practices such as leaving part of the harvest in the field for birds and other nature animals, not using pesticides to protect nature's creatures, not using credit due to the haram nature of interest, and lack of interest in certain activities such as pig rearing. These behaviors reflect the influence of religious values on agricultural practices, as discussed by Abdullah (2011) and Kalliny (2007).

This study was conducted as part of an analysis of the relationship between farmers' preferred social activities when not doing field work and their agricultural decisions. Although sustainability is threatened, farmers with religious activities are statistically more affected. Culture and religiosity affect farmers and their production, as highlighted by Fischer and Qaim (2012). The aim is to assess the production process, understand differences in performance, and help the various players in the chain to adapt their products, services, and policies accordingly.

In a context where Turkish agriculture is threatened by numerous challenges, the introduction of innovations is as crucial as their design, since adoption will be the final phase in resolving

production constraints. This is consistent with the findings of Rogers (2003), who emphasized the importance of innovation diffusion in agricultural practices. Consequently, a possible and logical research topic emerging from this study is to map farmers' decision-making processes, focusing on the factors that intervene during the process.

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