

Integrated Marketing Communication Mix Elements and Adoption of a Sports Culture: The Case of Academic Staff Members of Chartered Public Universities in Nairobi City County, Kenya

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Abstract

Adoption of a sports culture occurs when people make sports to be part of their lives. This study investigated the mediating role of lifestyle habits and the moderating role of socio-ecological factors in the relationship between the integrated marketing communication mix elements and adoption of a sports culture among academic staff members of chartered public universities in Nairobi City County, Kenya. The inquiry was based on the theory of planned behaviour (TPB), communication theory, Attention-Interest-Desire-Action (AIDA) model, and the diffusion of innovation theory. The realism paradigm and a descriptive survey research design were used for the study. The researchers sampled 372 academic staff members from five chartered public universities based in Nairobi City County using stratified random sampling. Binomial logistic regression was used in the data analysis since the dependent variable was categorical in nature. The study established that integrated marketing communication mix elements predicted the adoption of a sports

culture, with lifestyle habits mediating and socio-ecological factors moderating the relationship between integrated marketing communication mix elements and adoption of a sports culture by the academic staff members of the identified institutions. The study recommends that managers of health-promoting sports clubs should consider the integrated marketing communication mix elements, lifestyle habits, and socio-ecological factors when designing their communication programs.

Keywords: Integrated Marketing Communication Mix Elements, Socioecological Factors, Lifestyle Habits, Adoption, Culture

Introduction

Participation in physical activities like sports is associated with numerous benefits that include less expenditure on healthcare, lower chances of contracting cardiovascular diseases like stroke and hypertension, better mental health, and longevity of life (World Health Organization, 2022). Sports also enable people to socialize with others, avoid crime and drugs, reduce obesity, and unify people from different backgrounds. While these benefits are widely acknowledged worldwide, nearly 27% of the global population lives a sedentary lifestyle (Guthold *et al.*, 2018). Among the reasons advanced to justify sedentary behavior are lack of energy, motivation, and time to do exercises, automation of many activities, increased urbanization, and changing lifestyles of people (Roychowdhury, 2020). Health-promoting sports clubs should motivate people to lead physically active lifestyles in order to avoid the dangers associated with sedentary behavior, which could lead to premature deaths.

Due to the complexity of the contemporary business environment, firms must communicate with their stakeholders, who include their current and potential customers. Communication is a multifaceted concept, given that everything communicates. From a marketing perspective, communication is the process of transmitting information from a sender to a receiver through a certain channel. The main tools used by marketers to communicate are classified under direct marketing, advertising, sales promotions, public relations, and personal selling; these have to be coordinated with the marketing mix elements of product, price, place, people, processes, and physical evidence for them to achieve the best results. For instance, the shapes of products as well as where they are sold communicate something. The coordination of different elements of communication forms the integrated marketing communication mix.

The challenge of low participation in sports has attracted the attention of numerous scholars and practitioners who seek to find out how it can be solved (Park *et al.*, 2024). Specifically, some attention has been focused on

finding out the factors that make more people to participate in sports activities, thereby reducing sedentary behavior. While no consensus has been reached, the socio-ecological model proposed by McLeroy *et al.* (1988) identifies a set of five factors that greatly influence participation in sports. The model has gained wide acceptance among researchers of health-related behaviors (Sallis, Owen, & Fisher, 2024).

According to McLeroy *et al.* (1988), one determinant of the level of participation in sports is personal factors, which include gender, attitude towards sports, and age. A person with a positive attitude towards sports is more likely to engage in sports activities compared to another whose attitude is a negative. The second determinant is interpersonal factors like the support received from teammates, family members, and friends. Support from these groups of people can motivate someone to increase their level of participation in sports activities.

Organizational factors are the third determinant, and these include the playing schedules used by different clubs. Participation in sports can be increased by clubs having schedules that accommodate the needs of different people. The fourth determinant is community factors like the availability of sports facilities and equipment, and the attitude of a community towards sports. A community with a positive attitude towards sports is likely to have more physically active people, especially when sports facilities and equipment are available. The fifth determinant is public policy factors, like the influence of marketing activities and the presence of government laws that support participation in sports. Where a government or government department actively supports participation in sports, the level of participation is likely to be higher. Similarly, marketing efforts can increase the level of participation. Lifestyle is one variable in the psychographic base of classifying consumers. It refers to the uniqueness of personal and social behaviors that make one person or group different from other persons or groups (Nassè, 2023). The differences can be in terms of how people live, the activities they engage in, the motivations for engaging in those activities, patterns of spending money, interests, opinions, and the implications of their activities on others (Dacay, Rañon, & Culajara, 2024). Negative lifestyle habits like unhealthy eating and excessive consumption of alcohol and tobacco products can affect an individual's health negatively, while positive lifestyle habits like participating in sports and taking meals on a regular basis partially contribute to longevity of life. According to WHO (2004), the main lifestyle habits that lead to noncommunicable diseases are alcohol consumption, physical inactivity, unhealthy diets, and tobacco use.

The academic staff of chartered public universities in Kenya play a critical role in teaching and examining large numbers of students. They also supervise projects, theses, and dissertations at various levels besides

conducting research. Some academic staff members also perform administrative work, like heading different functions, departments, and colleges, among many others. In order for them to perform their work effectively and efficiently, they need to be physically, socially, and mentally healthy. One way of enhancing their health is by having them participate in physical activities like sports.

Mwangi and Rintaugu (2017) found that nearly 59.98% of academic staff in chartered public universities in Kenya led sedentary lifestyles, with just 28.27% of them being members of health-promoting sports clubs. At the same time, Matilda *et al.* (2020) found 75% of employees in Kenyan universities were physically inactive, implying a high level of sedentary behavior in Kenyan public universities. There is a need to reverse this negative trend in order to enable academic staff members to effectively perform their roles of teaching, examining, and supervising students, and conducting research. This study, therefore, sought to investigate the direct effects of the integrated marketing communication mix elements of public relations, advertising, sales promotion, direct marketing, and personal selling on the adoption of a sports culture by the identified group of respondents. It also sought to determine the mediating role of lifestyle habits and the moderating role of socio-ecological factors on this relationship.

Literature Review

This research reviewed both theoretical and empirical literature related to integrated marketing communication mix elements, lifestyle habits, socio-cultural factors, and adoption of a sports culture.

Theoretical Review

Several theories guided this study. The communication theory, originally proposed by Shannon and Weaver (1949), has been revised many times over the years. It holds that communication is an important aspect of all living things, and that it facilitates the survival and prosperity of all types of organizations. including health-promoting sports clubs. Without communication, many activities would greatly reduce, hence the need for organizations to actively manage their communication programs as opposed to leaving them to chance. Similarly, the attention-interest-desire-action (AIDA) model developed by Strong (1925) advocates that any communication should capture attention, gain interest, arouse desire to purchase the product, and lead people into purchasing the product. The two theories informed the integrated marketing communication mix elements aspect of the research.

The diffusion of innovation theory is attributed to Rogers (1962) and it explains how innovations spread through a social system. An innovation refers to a new idea, while diffusion is the process through which the new idea

spreads and gets accepted by a group of people. The theory further classifies people into different adopter categories based on the speed with which they adopt innovations. The categories are innovators, early adopters, early majority, late majority, and laggards. The hierarchy-of-effects model proposed by Lavidge and Steiner (1961) holds that consumers follow some steps when adopting innovations. These two theories informed the dependent variable of the study, which was adoption of a sports culture.

The theory of planned behavior (TPB) is attributed to Ajzen (1991) and it acknowledges that some behaviors are beyond the control of an individual, which partially explains why impulse buying occurs. The theory informed the mediating variable of the study, which was the lifestyle habits. In addition, the socio-ecological model proposed by McLeroy *et al.* (1988) informed the moderating variable of the study, which was the socio-ecological factors. The model argues that the level of participation in sports activities depends on personal, interpersonal, organizational, community, and public policy factors.

Empirical Review

Several studies have linked integrated marketing communication mix elements, socio-ecological factors, and adoption of a sports culture. For example, Kim and Kim (2018) found that attitudes towards advertisements influenced the rate at which people frequented the advertised premises, while Bae *et al.* (2020) found that attitude was a strong predictor of participation in sports. Hu, Zhou, Crowley-McHattan, and Liu (2021) established that gender, age, self-concept, ethnicity, safety of neighborhoods, access to sports facilities, and support from friends influenced the extent to which people participated in sports activities.

Rasmussen, Dufur, Cope, and Pierce (2021) found that 65% of Nike's advertisements were directed at males, creating the impression that sports were mainly for men. Bae et al. (2020) established that perceived behavioral control, subjective norm, attitude, and prior knowledge positively influenced the intention to participate in sports. Thormann and Wicker (2021) found that environmentally were conscious behaved environmentally friendly ways, which was in line with the theory of planned behavior. Many of these studies originated from the Western world, where conditions differ significantly from those in Kenya. Few studies are related to the Kenyan context. For instance, Simiyu (2019) identified the problems faced by Kenyan sports clubs, which included corruption, limited finances, financial mismanagement, political interference, and poor governance and leadership. Inadequate studies covering the area of sports, integrated marketing communication mix elements, the mediating role of lifestyle habits, and the

moderating role played by socio-ecological factors led the researchers to conduct this research so as to fill that gap.

Research Methodology

This study was based on the realism paradigm, which ontologically assumes that human weaknesses and the complexity of the world limit the ability to obtain the whole truth of any phenomenon (Saunders, Lewis, & Thornhill, 2023). This philosophy acknowledges the values held by researchers and respondents, although the researchers in this study were as objective as possible. The paradigm is suitable for undertaking research of a qualitative or quantitative nature.

The researchers used the descriptive survey research design to achieve the objectives of the study, since surveys enable the collection of quantitative data in situations where the researcher does not have control over the respondents and the research issues are contemporary in nature, as was the case for this study. The study targeted academic staff members of five chartered public universities that had their headquarters in Nairobi City County. These were Multimedia University, Technical University of Kenya, Kenyatta University, Cooperative University of Kenya, and the University of Nairobi. Out of a population of 5,331 academic staff members, the researchers used stratified random sampling to select 372 respondents, following the sampling recommendations of Yamane (1967).

Data was collected using a structured questionnaire that was personally administered by the researchers and the research assistants. Prior to the actual data collection, the questionnaire was pilot-tested using ten percent of the respondents, which was 37 respondents. Cronbach's alpha was used to establish the reliability of the questionnaire, while Confirmatory Factor Analysis (CFA) was used to determine its validity. Results from both tests confirmed that the questionnaire was reliable and valid for data collection. Binomial logistic regression was used to test the variables of interest, namely integrated marketing communication mix elements, lifestyle habits, socioecological factors, and adoption of a sports culture. The mediating effects of lifestyle habits and the moderating effects of socio-ecological factors on the relationship between the integrated marketing communication mix elements and adoption of a sports culture were tested at 5% significance level.

Research Findings and Discussion

The first objective of the study was to establish the direct relationships between integrated marketing communication mix elements and the adoption of a sports culture. The findings indicated that integrated marketing communication mix elements significantly predicted adoption of a sports culture, with $\beta = .043$, SE = 0.126, p = 0.003<0.05 level of significance. An

Exp (B) value of 2.044 indicated that the probability of an academic staff member adopting a sports culture was equal to 1, and it was 2.044 times likely to occur if the sports club increased its integrated marketing communication mix elements by one unit. Therefore, the researchers established that integrated marketing communication mix elements influenced the adoption of a sports culture by the identified group of respondents.

Secondly, the researchers sought to determine the moderating effects of socio-ecological factors on the relationship between integrated marketing communication mix elements and adoption of a sports culture. The results obtained after conducting the moderation test confirmed that socio-ecological factors significantly moderated the adoption of a sports culture, with β = .247, SE = 0.192, p = 0.002<0.05 significance level. The Exp (B) value of 1.781 implied that an academic staff member's probability of adopting a sports culture was equal to 1 and it was 1.781 times likely to occur if the health-promoting sports club improved its socio-ecological factors by one unit. The researchers concluded that socio-ecological factors had significant moderating effects on the relationship between integrated marketing communication mix elements and adoption of a sports culture by the respondents.

The third objective of the study was to find out the mediating role of lifestyle habits on the relationship between integrated marketing communication mix elements and adoption of a sports culture. This was tested through a series of four steps in line with the recommendations of Baron and Kenny (1986). After testing for direct relationships, the second step involved establishing the relationship between integrated marketing communication mix elements and lifestyle habits. The results of this step indicated an adjusted R² of 0.444 and a corresponding p-value of 0.000. This implied that integrated marketing communication mix elements explained 44.4% of the changes in lifestyle habits, and the relationship was significant (p-value 0.000<0.05). The beta value for integrated marketing communication mix elements of 0.668 implied that, holding all things constant, a unit change in integrated marketing communication mix elements would result in a 66.8% change in lifestyle habits. The findings of this study agree with those of Rakic and Rakic (2015), whose study in the Republic of Serbia established that integrated marketing communication mix elements affected the development of healthy lifestyle habits.

The third step investigated the relationship between lifestyle habits and the adoption of a sports culture. The study found that lifestyle habits (β = .029, SE = 0.105, p = 0.016<0.05) significantly predicted the adoption of a sports culture, with an Exp (B) value of 1.030 implying that an academic staff member's probability of adopting a sports culture was equal to 1 and it had 1.030 chances of occurring when a sports club increased its lifestyle habits by one unit. These findings corroborate those of Hernández-Beltrán *et al.* (2023),

which positively associated lifestyle habits with the adoption of a sports culture.

The fourth step introduced lifestyle habits as an explanatory variable and regressed it with integrated marketing communication mix elements on adoption of a sports culture to determine whether it had a partial, complete, or no influence on the relationship between integrated marketing communication mix elements and adoption of a sports culture. The study established that the combined effects of lifestyle habits and integrated marketing communication mix elements had a partial but significant effect on the adoption of a sports culture. The results indicated an Exp (B) value of 1.036, implying that the relationship between integrated marketing communication mix elements and adoption of a sports culture in the presence of lifestyle habits was significant. These findings agree with those of Manika *et al.* (2019), who established the positive role played by lifestyle habits in the adoption of a sports culture.

Conclusion

This study established that integrated marketing communication mix elements were important predictors of the adoption of a sports culture among academic staff members of chartered public universities in Nairobi City County, Kenya. In addition, the researchers found lifestyle habits to play a mediating role and socio-ecological factors to play a moderating role in the relationship between integrated marketing communication mix elements and adoption of a sports culture among the identified group of respondents.

This investigation concluded that managers of health-promoting sports clubs should consider the personal, interpersonal, organizational, community, and public policy factors when developing their communication strategies. The combined effects of the five socio-ecological factors influence the level at which people participate in sports activities. In addition, managers of health-promoting sports clubs should use the integrated marketing communication mix elements of advertising, personal selling, sales promotions, public relations, and direct marketing to communicate with their current and potential customers, integrating these elements with the marketing mix elements of product, price, place, people, processes, and physical evidence in order to achieve the best results. Managers of such clubs should also consider the lifestyle habits of their current and potential clients so as to incorporate them into their activities.

Recommendations for Further Research

The researchers recommend that similar investigations involving both the public and private chartered universities in Kenya could be conducted, given that the current study was limited to the public sector. In addition, the scope of the study could be expanded to cover other universities in the country

or even in more developed countries, as opposed to concentrating on Nairobi City County. Alternatively, other sectors could be researched using qualitative, quantitative, or mixed methods research approaches.

Fourthly, the researchers recommend that similar research could be conducted focusing on a single integrated marketing communication mix element and its effects on the adoption of a sports culture, considering that each element is broad enough to be studied on its own. A separate study could also be conducted emphasizing the services aspects of sports clubs, with emphasis being laid on service inseparability, intangibility, perishability, and heterogeneity in terms of how they affect the adoption of a sports culture. Alternatively, a study examining the role played by the marketing mix elements of place, physical evidence, price, processes, product, people, and promotion in relation to the adoption of a sports culture could also be conducted.

Conflict of Interest: The authors reported no conflict of interest.

Data Availability: All data are included in the content of the paper.

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Declaration for Human Participants: This study was conducted in line with the ethical practices recommended by Kenyatta University, Kenya. The researchers obtained informed consent from the participants before administering the questionnaires to them, and anonymity, voluntary involvement, and freedom to withdraw from the investigation at any moment were observed during the entire period of the investigation. Prior to collecting the data, the researchers obtained written authorization from Kenyatta University on 27th August, 2024, and from the National Commission for Science, Technology and Innovation (NACOSTI) on 14th October, 2024; the license number granted for the research was NACOSTI/P/24/40824.

References:

- 1. Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211. https://doi.org/10.1016/0749-5978(91)90020-T
- 2. Bae, U., Won, D., Lee, C., & Pack, S. (2020). Adolescent participation in new sports: Extended theory of planned behavior. *Journal of Physical Education and Sport (JPES)*, 20(3), 2246-2252. Available at: https://efsupit.ro/images/stories/iulie2020/Art%20301.pdf (Accessed: 2 June 2025).

- 3. Dacay, N., Rañon, J., & Culajara, C. (2024). Examining the health-promoting lifestyle of college students: A quantitative analysis. *American Journal of Human Psychology*, 2(1), 93-103. https://doi.org/10.54536/ajhp.v2i1.2823
- 4. Guthold, R., Stevens, G., Riley, L., & Bull, F. (2018). Worldwide trends in insufficient physical activity from 2001 to 2016: A pooled analysis of 358 population-based surveys with 1.9 million participants. *The Lancet Global Health*, 6(10), e1077-e1086. DOI: 10.1016/S2214-109X(18)30357-7
- 5. Hernández-Beltrán, V., Espada, M., Santos, F., Ferreira, C., & Gamonales, J. (2023). Documents publication evolution (1990–2022) related to physical activity and healthy habits: A bibliometric review. *Healthcare*, 11(12), 1669. DOI: 10.3390/healthcare11121669
- 6. Hu, D., Zhou, S., Crowley-McHattan, Z., & Liu, Z. (2021). Factors that influence participation in physical activity in school-aged children and adolescents: A systematic review from the social ecological model perspective. *International Journal of Environmental Research and Public Health*, 18(6), 3147. https://doi.org/10.3390/ijerph18063147. DOI: 10.3390/ijerph18063147
- 7. Kim, M., & Kim, J. (2018). Linking marketing mix elements to passion-driven behavior toward a brand: Evidence from the food service industry. *International Journal of Contemporary Hospitality Management*, 30(10), 3040-3058. DOI: 10.1108/IJCHM-10-2017-0630
- 8. Lavidge, R., & Steiner, G. (1961). A model for predictive measurements of advertising effectiveness. *Journal of Marketing*, 25(6), 59-62. https://doi.org/10.1177/002224296102500611
- 9. Manika, D., Gregory-Smith, D., Wells, V., & Trombetti, E. (2019). Student SwitchOff!': How do university students respond to a corporate-sponsored pro- environmental social marketing campaign? *Studies in Higher Education*, 44(9), 1691-706. DOI: 10.1080/03075079.2018.1474456
- 10. Matilda, M., Kamau, J., Mwangi, F., Wanderi, M., & Onyango, E. (2020). Status of participation in physical activity by employees in Kenyan universities at Onsite Fitness Centers in Kenya. *African Journal of Education, Science and Technology*, 6(1), 122-133. https://doi.org/10.2022/ajest.v6i1.470
- 11. McLeroy, K. R., Bibeau, D., Steckler, A., & Glanz, K. (1988). An ecological perspective on health promotion programs. *Health Education Quarterly*, 15(4), 351-377. DOI: 10.1177/109019818801500401

- 12. Mwangi, F., & Rintaugu, E. (2017). Physical activity and health related physical fitness attributes of staff members in a Kenyan public university. *International Journal of Sports Science* 2017, 7(2), 81-86. DOI: 10.5923/j.sports.20170702.09
- 13. Nassè, T. (2023). Defining culture in a marketing management perspective. *International Journal of Management & Entrepreneurship Research*, 5(12), 907-914. DOI: 10.51594/ijmer.v5i12.625
- 14. Park, S., Lee, S., Woo, S., Webster-Dekker, K., Chen, W., Veliz, P., & Larson, J. L. (2024). Sedentary behaviours and physical activity of the working population measured by accelerometery: A systematic review and meta-analysis. *BMC Public Health*, 24(1), 2123. DOI: 10.1186/s12889-024-19449-y
- 15. Rakic, B., & Rakic, M. (2015). The influence of integrated marketing communication on the process of creating a healthy lifestyle. *Revista Romana de Bioetica*, 13(3), 1-15. Available at: https://www.researchgate.net/publication/317057623 The influence of integrated marketing communications on the process of creating a healthy lifestyle (Accessed: 6 June 2025)
- 16. Rasmussen, K., Dufur, M., Cope, M., & Pierce, H. (2021). Gender marginalization in sports participation through advertising: The case of Nike. *International Journal of Environmental Research and Public Health*, *18*(15), 7759. DOI: 10.3390/ijerph18157759
- 17. Rogers, E. (1962). *Diffusion of innovations*. New York: Free Press. Available at: https://teddykw2.wordpress.com/wp-content/uploads/2012/07/everett-m-rogers-diffusion-of-innovations.pdf (Accessed: 2 June 2025).
- 18. Roychowdhury, D. (2020). Using physical activity to enhance health outcomes across the life span. *Journal of Functional Morphology and Kinesiology*, *5*(2), *1-13*. DOI: 10.3390/jfmk5010002
- 19. Sallis, J. F., Owen, N., & Fisher, E. B. (2024). Ecological models of health behavior. In K. Glanz, B. K. Rimer, & K. Viswanath (Eds.), *Health behavior and health education: Theory, research, and practice* (pp. 465–486). San Francisco, CA: Jossey-Bass. Available at: https://www.researchgate.net/publication/43508113 Ecological Models of Health Behavior (Accessed: 2 June 2025).
- 20. Saunders, M., Lewis, P., & Thornhill, A. (2023). *Research methods for business students*. London: Pearson Education Limited. Available at:
 - https://www.google.co.ke/books/edition/Research Methods for Business Students/zoy1EAAAQBAJ?hl=en (Accessed: 2 June 2025).

2025).

- 21. Shannon, C., & Weaver, W. (1949). *The mathematical theory of communication*. Urbana: The University of Illinois Press. Available at: https://www.google.co.ke/books/edition/_/8hXvAAAMAAJ?hl=en_ksa=X&ved=2ahUKEwjMmtG1ldONAxUwUKQEHZNBDP0Qre8 FegQIExAJ (Accessed: 2 June 2025).
- 22. Simiyu, W. (2019). Africa at the football World Cup final tournament, 1934-2018: Defining moments and memories on the field. *Soccer and Society, 20*(7-8), 973-985. https://doi.org/10.1080/14660970.2019.1680497
- 23. Strong, E. (1925). *The psychology of selling and advertising*. New York: McGraw-Hill. Available at: <a href="https://www.google.co.ke/books/edition/The_Psychology_of_Selling_and_Advertisin/7ksEAAAAMAAJ?hl=en&gbpv=1&dq=Strong,+E.+(1925).+The+psychology+of+selling+and+advertising&printsec=frontcover (Accessed: 2 June 2025).
- 24. Thormann, T. & Wicker, P. (2021). Determinants of proenvironmental behavior among voluntary sport club members. *German Journal of Exercise and Sport Research*, *51*(2), 29-38. DOI: 10.1007/s12662-020-00700-8
- 25. World Health Organization *(WHO)* (2004). Global strategy on diet, physical activity and health. Available at: https://www.who.int/publications/i/item/9241592222 (Accessed: 2 June 2025).
- 26. World Health Organization (WHO) (2022). *Noncommunicable diseases*. Geneva: World Health Organization. Available at: https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases (Accessed: 2 June 2025).
- 27. Yamane, T. (1967): *Statistics: An introductory analysis*. Japan: Harper and Row. Available at: https://www.google.co.ke/books/edition/Statistics an Introductory

 <u>Analysis/dX-HBsrLHMIC?hl=en&gbpv=1&bsq=Yamane,+T.+(1967):+Statistics:+An+introductory+analysis.&dq=Yamane,+T.+(1967):+Statistics:+An+introductory+analysis.&printsec=frontcover (Accessed: 2 June)</u>