

Available online at ijci.wcci-international.org

International Journal of Curriculum and Instruction 15(3) (2023) 2020–2032 IJCI International Journal of Curriculum and Instruction

The External Agenda and Internal Expectations of USAID Administrative and Supervisory Role in Liberia Education

Esen Sucuoğlu ^a *, Gifty Onita Davies ^b

^a Near East University, Faculty of Education, Nicosia, North Cyprus, Mersin 10 Turkey ^b Ministry of Liberia, Africa

Abstract

This study aimed to investigate The External Agenda and Internal Expectations of the United States Agency for International Development (USAID) Administrative and Supervisory Role in Liberia Educational System. This work examines the impact of USAID role and how it is important on the country's educational system. Together with other donors, USAID works with the Ministry of Education (MOE) in Liberia to improve the Liberian educational system's access, quality, and management. This study employed a questionnaire and the researcher conducted 20 focus group discussion for data collection of this work. This study is a Quantitative Research Appropriate thematic analysis was used as data analysis tool. Analysis from this research has shown that 66.4% study participants stated as agree that they feel most of the children received access to proper education after the intervention of USAID in Liberian education 66.4% stated as agree that they feel that there is an improvement of skilled labor in the job market of Liberian with changes implemented by USAID.62.6% stated as agree that there is a proper distribution of education materials and infrastructure for all the government schools with administration of USAID.

Keywords: Education, administration, USAID, external agenda, internal expectations

© 2016 IJCI & the Authors. Published by *International Journal of Curriculum and Instruction (IJCI)*. This is an openaccess article distributed under the terms and conditions of the Creative Commons Attribution license (CC BY-NC-ND) (http://creativecommons.org/licenses/by-nc-nd/4.0/).

^{*} Corresponding author: Esen Sucuoğlu. ORCID ID.: <u>https://orcid.org/0000-0002-0978-7984</u> *E-mail address*: <u>esen.sucuoglu@neu.edu.tr</u>

1. Introduction

The United States Agency for International Development (USAID) has been working in Liberia for more than 50 years. In Liberia's growth, the United States has had a significant effect. Liberia's national development strategy is reflected in our development plan for Liberia, as stated in other official documents, such as the Transformation Agenda. It is USAID's mission to help Liberia's people, government, and institutions overcome the structural and institutional difficulties that contributed to the 14-year civil war and chaotic transition (Allemano et Al., 2009).

As part of USAID's efforts to improve the country's educational system, the MOE and other donors work together. Students with disabilities, girls, and those who have missed school due to civil violence all have equal access to secure learning environments because of USAID education efforts. An additional new USAID initiative is focused on encouraging Liberia's enormous population of young people to participate actively in the country's drive toward self-sufficiency. Liberia's educational system has taken a long time to recover from the destruction brought on by the lengthy period of civil unrest that the nation experienced (Allemano et Al., 2009). Schools were shuttered in 2015 because of the Ebola virus, and the long-term effects of the war continue to affect the educational system of the nation. Compared to other African countries, the educational system in Liberia is grossly undeveloped. Only 44% of primary-aged children are now enrolled in school, according to a recent study. After 14 years of civil war, Liberia's educational system had to be rebuilt (Gordon, 2013).

Other donors, including USAID, work with the Ministry of Education (MOE) to promote educational access, quality of teaching, and governance. All children, especially those who have been left behind by post-war reconstruction and substandard educational systems, will have equal access to high-quality educational opportunities thanks to USAID's educational programs, which are being implemented worldwide. It is USAID's goal to improve education in Liberia through training teachers, providing better instructional materials, and developing better data systems and regulations. NGOs and the Liberian Ministry of Education (MOE) have received assistance from the United States Agency for International Development (USAID) to create more educational choices, initiatives, and leaders, as well as improved living situations for young Liberians who are not in school (Boayue, 2014).

The Ministry of Education (MOE) and non-governmental groups help young people who have had little or no schooling get the education and training they need to thrive in the workforce (NGOs). The USAID-funded Excellence in Higher Education for Liberian Development project aspires to construct Centers of Excellence for engineering and agricultural programs, both of which are essential to Liberia's long-term success. US Agency for International Development (USAID) has suggested sponsoring and conducting a pilot test of an early grade reading exercise in six Liberian counties. An oral vocabulary lexicon crucial to improving reading skills is built up by students in grades one and two at public primary schools. There are four possible outcomes to this task: An increase in government financing for research-based reading education has enhanced classroom instruction, service delivery systems, and parental, community, and private support for first-grade reading instruction (Gordon, 2013). Over the course of the next five years, this program is estimated to benefit 5,400 kindergarten students in public primary schools. At the moment, it's establishing a baseline. The early grade reading activity will be influenced by the findings of the baseline assessment. The US Agency for International Development's (USAID) Learning Links Project will address the psychological needs of girls while providing them with imaginative, safe, and carefully managed access to education in a way that is compatible with their individual circumstances (USAID, 2002).

For the Learning Links Project, the MOE will cooperate with 360 tutor-mentors to give 2,500 pregnant teenage females who have been out of school for three years with an alternative, flexible learning environment. The Liberian Ministry of Education is training more than 360 women to serve as tutor-mentors for the Alternate Basic Education Curriculum. To ease the transition to formal education, the tutor-mentors will help the girls catch up with their classmates in terms of reading and numeracy. Learning Links, a project of the US Agency for International Development, is designed to meet the unique psychological requirements of girls by providing them with imaginative, secure, and carefully managed access to education. For a three-year trial, MOE will use its ABE curriculum, SMS-based evaluations, and micro-incentives to give 2,500 pregnant adolescent females with an alternative, flexible learning environment dubbed Learning Links (USAID, 2022).

The ministry of education organized the training of 360 literate and numerate women to act as tutors-mentors for these girls who have dropped out of school. With their reading and numeracy skills improved, the girls will be better prepared to begin formal schooling. It is their job to assist the females get an education with the support of experienced tutor-mentors Students in Liberia's public primary schools in six selected counties will participate in an early grade reading exercise sponsored by USAID (Stromquist et al., 2013). Also, in the works is a pilot program for kindergarten students in public schools. It is hoped that by using this strategy, two-year-olds and pre-primary students would be able to read and understand texts of a grade-level difficulty in English. Over the course of a five-year period, the initiative aims to help 5,400 public school kindergarten students and 172,800 primary school students in the first and second years (USAID, 2022).

Research on students' motives and techniques and the elements that impede their learning is crucial since students are at the heart of the learning process. Students have a significant role to play in tailoring their own education and achieving higher grades. Liberian students' learning habits and motivations, as well as the barriers that prevent them from learning, are examined in this study. Therefore, Zimmerman emphasizes the significance for educators to research how children acquire the capacity and desire to govern their own learning. Students who are motivated to study are more likely to succeed academically than those who aren't, according to Gasco and colleagues. To engage in self-regulated learning, students, according to Pintrich, must keep track of their thoughts, feelings, and actions in order to maintain self-regulation. How much work individuals put in and how long they are willing to put in are all factors that are influenced by motivation, according to Dörnyei. That which paves the way for a journey is what motivates, inspires, and defines where you're headed. To put it another way, your motivation is what steers you in the direction of your desired destination

Student evaluations of academic efficiency may show disparities in students' learning styles and motivation, according to Zimmerman and Martinez-Pons, who provided this data. The three components of motivation that make up the effective construct of test anxiety are: goal orientation, task value, and self-efficacy and control beliefs. Studies have demonstrated that students who apply cognitive techniques like elaboration and organization connect with the topic on a deeper level, increasing their odds of memorizing the knowledge and recalling it in the future. It was shown that four independent traits (intrinsic goal orientation, self-efficacy, test anxiety and metacognitive learning) are important predictors of college students' performance in Al Khatib. The ability to selfregulate was shown to be worse in students who reported greater levels of test anxiety.

As a result of this study, we now know how Liberian junior and senior high school students approach studying a variety of courses. Students' motivations and learning techniques may be taught, this acknowledges. Liberian pupils' academic performance was also advised to be improved, as well as identified possible obstacles to their educational progress.

The general purpose of the present research study is to highlight the role of USAID in developing the education system in Liberia. Therefore, the present research has the following specific research purposes.

- To determine the modifications made to the Liberian educational system as a result of USAID participation.
- To identify whether the USAID works on the challenges faced by the Liberia education system.
- To pinpoint the components of the Liberian educational system that the USAID's involvement had a favorable influence on and those that need additional attention.

• To identify the partnership between the government and USAID related to the Liberian education system.

2. Method

2.1. Research Design

The research design used by the researcher in this study is quantitative research design. The data were analyzed numerically based on the administered questionnaire (Hashim et al., 2020).

2.2. Research Population

The population of this research is 220 all of whom made up of the workforce of the Ministry of Education in Liberia where the study was conducted. The population of the study include educational experts, NGO officials, government officials and others who are working within the Ministry of Education. These people were selected primarily because they have idea of USAID's administrative and supervisory role plays in Liberia's educational sector.

The sample size of this study chosen is 140. According to (Krejcie, R. & Morgan, D. 1970), out of the population of 220, 140 sample size is suitable for this study. Notwithstanding, the researcher sent out 140 questionnaires but 108 responded and 32 didn't respond.

2.3. Data Collection Instruments:

Data collection is the way in which researcher gather information from targeted population in a systematic way which enables one to answer relevant questions and evaluate outcomes. During the course of this study, the researcher used structured questionnaire mostly to gather or collect primary data which was 140. In section one of the questionnaire, the researcher asked two personal questions to gather personal information of the respondents which included the respondents' age and gender. In the next section of the questionnaire, the researcher asked the role of each participants in the educational sector. The role of the respondents in the educational sector was divided into four namely: educational experts, NGO officials, government officials and other teachers and employees under the Ministry of Education of Liberia. In the same section of the questionnaire, the researcher asked for the years of experience of the respondents in Liberia's educational sector. The last section used the Likert scale ranging from 1 -strongly disagree to 5 -strongly agree (1 -strongly disagree, 2 -disagree, 3 -neutral, 4 -agree, 5 -strongly agree).

2.4. Data Collection Procedures:

To collect the data, the researcher prepared electronic questionnaires and distributed through WhatsApp, email, and messenger of all the 140 respondents who made up the sample size of the study. The researcher was able to get in contact with respondents who agreed and were willing to participate in this study through the help of the Ministry of Education in Liberia who fully understood the objectives and significant of this research. Before commencing the study, the researcher applied to the Near East University Ethics Committee and got approval letter before carrying out the study. Each of the participants fully consented without any form of coercion to participate in the study.

First, the completed surveys were reviewed, cleaned, changed, and compiled into relevant information for easy understanding. For ease of analysis, the data was first transformed into coded categories. The researchers used IBM, SPSS 22 to create frequency tables and charts for the final results.

3. Findings and Discussion

The collected data and the analysis performed are tabulated and presented as in the following.

Table 1. Gender Distribution of Respondents

G	ender	Frequency N	Percent %	Valid Percent %	Cumulative Percent %
Valid	Female	32	29.6	29.6	29.6
	Male	76	70.4	70.4	100.0
	Total	108	100.0	100.0	

Table 2. Age Distribution of Respondents

Age		Frequency N	Percent %	Valid Percent %	Cumulative Percent %
Valid	18 - 23	1	.9	.9	.9
	24 - 29	3	2.8	2.8	3.7
	30 - 35	14	13.0	13.0	16.7
	36 - 41	17	15.7	15.7	32.4
	42 - 47	43	39.8	39.8	72.2
	48 & Above	30	27.8	27.8	100.0
	Total	108	100.0	100.0	

Responses		Frequency N	Percent %	Valid Percent %	Cumulative Percent %
Valid	Educational Expert	58	53.7	53.7	53.7
	NGO Official	15	13.9	13.9	67.6
	Government Official	31	28.7	28.7	96.3
	Other	4	3.7	3.7	100.0
	Total	108	100.0	100.0	

Table 3. Responses to the question "What is your role related to the Liberian education system?"

Table 4. Responses to the statement "Most of the children received access to proper education after the intervention of USAID in Liberian Education"

Responses		Frequency N	Percent %	Valid Percent %	Cumulative Percent %
Valid	Agree	73	67.6	67.6	67.6
	Disagree	5	4.6	4.6	72.2
	Neutral	13	12.0	12.0	84.3
	Strongly Agree	12	11.1	11.1	95.4
	strongly Disagree	5	4.6	4.6	100.0
	Total	108	100.0	100.0	

Table 4 highlights the children who have received access to proper education after the intervention of USAID in Liberian educational sector. In this section, the question was asked using the Likert scale which range from agree, disagree, neutral, strongly agree and strongly disagree. In the table listed above, 73 respondents accounting for 67.6% agreed to the statement, 5 respondents accounting for 4.6% of the sample size disagreed, 13 respondents accounting for 12.0% remained neutral, 12 respondents accounting for 11.1% strongly agreed with the above statement and lastly 5 respondents constituting 4.6% of the sample size stated that they strongly disagreed with the above statement.

Table 5. Responses to the statement "There is an improvement of skilled labor in the job market of Liberia with changes implemented by USAID"

Responses		Frequency N	Percent %	Valid Percent %	Cumulative Percent %
Valid	Agree	71	65.7	65.7	65.7
	Disagree	14	13.0	13.0	78.7
	Neutral	11	10.2	10.2	88.9
	Strongly agree	10	9.3	9.3	98.1
	Strongly disagree	2	1.9	1.9	100.0
	Total	108	100.0	100.0	

Table 5 shows the level of improvement of skilled labor in the job market of Liberia with changes implemented by USAID. In the above table, 71 respondents accounting for 65.7% agree with the statement, 14 respondents accounting for 13.0% of the sample size disagreed with the above statement, 11 respondents accounting for 10.0% of the sample size chose to remain neutral on the above statement. Also, 10 respondents constituting 9.3% said they strongly agreed with the above statement, and lastly, 2 respondents amounting to 1.9% said they strongly disagreed with the statement above.

The findings from the study revealed that of the total of 108 sample size drawn from the population of 220 show that 70.4% were male respondents whilst 29.6% of the sample size were female respondents that aided the researcher in the study. The researcher also distributed the questionnaire placing the respondents into various age categories. The findings revealed that 0.9% was between the ages of 18-23, 2.8% were between the ages of 24-29, 13.0 of the sample sizes were between the ages of 30-35, 15.7% were between the ages of 36-41, 39.8% of the sample size was between the ages of 42-47 and 27.8% was between the ages of 48 and above.

On the role play by each of the respondents in relation to the education system, findings show that 58 respondents accounting for 53.7% were educational experts, 15 respondents accounting for 13.9% were NGO officials, 31 respondents constituting 28.7% were government officials and 4 respondents accounting for 3.7% of the sample size were others working with the Ministry of Education of Liberia.

The years of working experience of each of the respondents in previously mentioned role revealed that 0.9% of the sample size has worked for less than 1 year in the education system of Liberia, 4.6% of the study's participants have worked in their various positions between 1 to 5 years, whilst 19.4% of the participants have been working in their various positions between 5 to 10 years, 55.6% of the participants have been working for more than 15 years in the education sector of Liberia according to what the findings revealed. Children in Liberia have received proper education after the intervention of USAID in Liberia's education system. This was supported by 67.6% of the research participants. Also, it was revealed in the findings that there has been significant improvement of skilled labor in the job market in Liberia with changes implemented by USAID. This result was backed by 65.7% of the study.

The research findings uncovered that USAID has distributed proper education materials and infrastructure for all government's schools in Liberia. The study's findings show that 63.9% of participants of the study agreed that all government's schools have received education materials through USAID's administration. It was also revealed from the study's findings that USAID's agenda address to the challenges related to access quality education improved the governance of the education system in positive manner. This was supported by 70.4% of the study's participants.

The research findings discovered USAID's education programs are focused on improvement of teaching and learning in Liberia's education system. According to the findings, 71% of the study's participants agreed. The study's findings revealed that USAID's educational programs are focused equitable access to safe learning opportunities for all females most especially needed people, adults and youth who missed their education. It was also uncovered from the findings that USAID is providing great support for improving curriculum of the Liberia's educational sector. Research findings show that USAID is helping to improve the policy environment essential to providing basic education services and tertiary access to all Liberians. The study's finding also revealed that there is a proper coordination and understanding between the Ministry of Education of Liberia and USAID. According the research findings, it shows that USAID has implemented specific education programs for adults with lower literacy.

On the area of USAID's vocational training program use to improve the skills of people and the Liberia's economy. Results show that 81 respondents amounting to 75.0% of the sample size agree to the statement on the table, 7 respondents amounting to 6.5% chose to stay neutral and 20 respondents accounting for 18.5% strongly agreed. On whether or not USAID's assistance and guidance are important for the development of Liberia's educational system, results show that 79 respondents amounting to 73.1% of the sample size agreed with the above statement, 4 respondents amounting to 3.7% chose to stay neutral, 23 respondents accounting for 21.3% strongly agreed and 2 respondents amounting for 1.9% strongly disagreed with the statement. On whether or not USAID has implemented proper primary and secondary education through her supervisory role, findings show that 74 respondents amounting to 68.5% of the sample size agreed to the above statement, 6 respondents amounting to 5.6% of the sample size disagreed, 11 respondents amounting to 10.2% stayed neutral, 16 respondents accounting for 14.8% strongly agreed to the statement and 1 respondent amounting to 0.9% strongly disagreed. On the role USAID plays in strengthening policies and resources available to the Ministry of Education, result shows that 81 respondents amounting to 75.0% agreed to the statement, 10 respondents accounting for 9.3% chose to stay neutral, 15 respondents amounting to 13.9% of the sample size strongly agreed with the statement and 2 respondents amounting to 1.9% strongly disagreed. USAID's decision regarding the education system in line with current laws and regulation. Results show that 73 respondents accounting for 67.6% of the sample size agreed with the statement, 3 respondents constituting 2.8% disagreed, 18 respondents amounting to 16.7% chose stay neutral, 12 respondents amounting for 11.1% strongly agreed and 2 respondents accounting for 1.9% strongly disagreed with the statement. On whether or not USAID provides education for out-of-school children, the results show that 20 respondents amounting to 18.5% said maybe, 5 respondents amounting for 4.6% of the sample size said no and 83 respondents amounting for 76.9% answer yes to the question.

On whether or not Liberians who are taught through the current education system in Liberia receive better employment opportunities, the results show that 71 respondent amounting for 65.7% of the sample size agreed that Liberians taught under the current education system receive better employment opportunities, 9 respondents accounting for 8.3% of the sample size disagreed with the statement, 11 respondents accounting for 10.2% of the sample size chose to remain neutral, 11 respondents amounting to 10.2% strongly disagreed with the statement and 6 respondents amounting to 5.6% strongly disagreed. Findings revealed that the government of Liberia's intervention on the education system is worse.

Finding from the study revealed that USAID should continue to focus more on working to improve the Liberia's educational system. This was backed and supported by 94.4% of the study's participants. Also, it was discovered from the findings that USIAD should develop long term agenda for Liberian education sector. On whether or not USAID's accelerated quality education program is a success, results show that 12 respondents amounting to 11.1% of the sample size said maybe, whilst 3 respondents amounting to 2.8% said no and 93 respondent accounting for 86.1% answered in the affirmative Yes that USAID's accelerated quality education is a success. On whether or not the expectation of USAID's programs and policies into the Liberia's education system is a success, results from the above table show that 86 respondents amounting to 79.6% of the sample size agreed with the question, 4 respondent accounting for 3.7% disagreed, whilst 11 respondents amounting to 10.2% chose to remain neutral and 7 respondents amounting to 6.5% strongly agreed to the question. On whether or not USAID's supervisory role in the educational sector of Liberia has made a positive impact. Results from the above table show that 8 respondents accounting for 7.4% of the sample size said maybe to the question, 3 respondents amounting to 2.8% said no and 97 respondents amounting to 89.8% said yes USAID supervisory role in Liberia's educational sector has made a positive impact.

4. Conclusions

The study concludes that the out of school children's and overage children in schools so that they can start getting formal education in Liberia. This is a targeted areas program initiative to ensure the formal education for a particular segment of children. Moreover, this program also focuses on the teachers training as well so that they can impart knowledge effectively through effective instructional methods. So that these instructional methods can grab the attention of the students and students take interest in the learning process. It's obvious that at early age as such there is no mechanism to assess the success and academic performance of children. Similarly, teachers and parents remain doubt full about their students and children performance. Therefore, there should be a mechanism through which early grade students' academic performance can be assessed. Therefore, it is much needed to set benchmark that at the end of one, two and third grade to assess the reading skills and abilities. Study shows that early grade students should be assess through reading skills in formal education to measure and assess success of the students. Hence, this activity will be beneficial for the early Grade students and especially for those students who are not good at reading.

Apart from the socioeconomic conditions and education system of Liberia, it is obvious that it is the leading recipient country that is being supported by the USAID in different Development projects. Liberia and USAID are having the long-lasting relationship and partnership with each other. In this regard, different teaching training program has been initiated so that teachers can get latest teaching techniques to enhance the learning process of students. This initiative has been taken with this objective that student learning can be maximized through their better academic performance.

On the other hand, the curriculum of the country is also not according to the needs of the society. With the technological advancement, the world has witnessed a substantial change in every walk of life. Transition from traditional method toward technology gadgets has made the learning process easier. Therefore, the curriculum of the Liberia education systems needs revision according to the needs of the country so that its future generation can compete globally. Sucuoglu & Davies / International Journal of Curriculum and Instruction 15(3) (2023) 2020-2032 2031

References

- Allemano, E., Miller Wood, J. and Walker, G. (2009). Liberia Youth Fragility Assessment. American Institutes for Research. (May 2016). Liberia Girls' Opportunities to Access Learning (GOAL) Plus.
- Boayue, N. M. (2014). An Exploration of the Challenges of Access and Retention Reintegrating Former Refugee and Internally Displaced Girls into Secondary School in Post-conflict Liberia. Faculty of Education and International Studies Oslo and Akershus University College of Applied Sciences.
- B. J. Zimmerman, "Self-regulating academic learning and achievement: the emergence of a social cognitive perspective," *Educational Psychology Review*, vol. 2, no. 2, pp. 173– 201, 1990.View at: <u>Publisher Site | Google Scholar</u>
- B. J. Zimmerman and M. Martinez-Pons, "Student differences in self-regulated learning: relating grade, sex, and giftedness to self-efficacy and strategy use," *Journal of Educational Psychology*, vol. 82, no. 1, pp. 51–59, 1990.View at: <u>Publisher Site | Google</u> <u>Scholar</u>
- D. H. Schunk, "Self-regulated learning: the educational legacy of Paul R.
- Gordon, C. (2013). Reflections on the Accelerated Learning Programme. IBIS. Monrovia, Liberia. Government of Liberia, The World Bank. (2016). Liberia Education Sector Analysis.
- Hashim, N. A. A. N., Aziz, R. C., FahmieRamlee, S. I., Zainuddin, S. A., Zain, E. N. M., Awang, Z., ... & MuhamedYusoff, A. (2020). E-learning technology effectiveness in teaching and learning: analyzing the reliability and validity of instruments. In IOP Conference Series: Materials Science and Engineering (Vol. 993, No. 1, p. 012096). IOP Publishing.
- J. Gasco, A. Goñi, and J. D. Villarroel, "Sex differences in mathematics motivation in 8th and 9th grade," *Procedia—Social and Behavioral Sciences*, vol. 116, pp. 1026–1031, 2014.View at: <u>Publisher Site | Google Scholar</u>

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities.

- Pintrich," *Educational Psychologist*, vol. 40, no. 2, pp. 85–94, 2005.View at: <u>Publisher</u> <u>Site | Google Scholar</u>
- S. A. Al Khatib, "Meta-cognitive self-regulated learning and motivational beliefs as predictors of college students' performance," *International Journal of Research in Education*, vol. 27, pp. 57–72, 2010.View at: <u>Google Scholar</u>
- Stromquist, N., Lin, J., Corneilse, C., Klees, S., Choti, Y., and Haugen, C. (2013). Women teachers in Liberia: Social and institutional forces accounting for their underrepresentation. International Journal of Educational Development 33, pg. 521–530.

- USAID. (2022). USAID From the American People. Retrieved from USAID From the American People:<u>https://www.usaid.gov/sites/default/files/documents/1860/USAID_Liberia_</u>_____EDUCATION_Sector_Fact_sheet_0.pdf
- World ORT. (n.d.). Literacy Training & Employment Program (LTEP) Liberia Soros Open Society Foundation – 2012 – 2014. Retrieved April 27, 2013, from World ORT – International Cooperation – Global Aid: <u>http://globalaid.ort.org/africa/liberia/literacytraining-employment-program/</u>
- Z. Dornyei, *Motivational Strategies in the Language Classroom*, Cambridge University Press, New York, NY, USA, 2001. View at: <u>Publisher Site</u>

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the Journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (CC BY-NC-ND) (http://creativecommons.org/licenses/by-nc-nd/4.0/).