

Analysing the Effectiveness of “Shadow Education” in the Training of Candidates for Competitive Entrance Examinations into Advanced Schools in Cameroon: Evidence from the “Preps” Groups in Yaounde

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ABSTRACT

Over the years, shadow education, a supplement to the formal or classroom learning has considerably gain ground in both the developed and less developed countries. This form of education provides the most needed support especially to candidates preparing for competitive entrance examinations. Due to the inability of the public sector to accommodate all the graduates, competitive entrance examinations has been seen as the appropriate mechanism through which candidates can be meritoriously selected. The present study seeks to examine the impact of the effectiveness of preps groups in the training of candidates for entrance examinations into advanced schools in Cameroon. As such, the study is purely quantitative based on the deductive research design. A close ended questionnaire was administered to a sample of 515 participants randomly selected for the study. Two theories were used to discuss the results of the findings which are Hannan and Freeman Organisational ecology theory and Avery`s sustainable leadership theory. Statistical data analysis techniques, precisely the regression analysis was used to analyse the data collected from the field. Basing on the findings, it was revealed that the effectiveness of the preparatory groups is a positive and strong predictor of the training of candidates for entrance examinations into advanced schools in Cameroon since the model established a moderate and good fit. This implies that the success of candidates in entrance examinations in Cameroon largely depends on how effective the preps groups are in the training of these candidates.

Keywords: *Shadow Education; Preps Groups; Competitive Entrance Examinations; Advanced schools.*

INTRODUCTION

Shadow education has become a worldwide view as it is being practice in almost all the four corner of the globe. This form of education is highly regarded as the supplement to the formal system of education as it takes place out of the formal settings and in unorganised environment. Also known as private supplementary tutoring, assistance, repetition classes, and online courses, provides the most needed support and assistance to the candidates preparing for national or official exams as well as competitive entrance examinations either for entrance into professional training schools or either for job placement. According to Zhang and Bray (2020), shadow education has greatly expanded across all the four corner of the globe and has become a daily routine to a number of families and households. This is why Christensen (2019) argues that as shadow education expands, it diversifies, and as it diversifies, it expands. Several definitions have been used to define the concept of shadow education. In an international study sponsored by Singapore`s Office of Canada defined shadow education as a process whereby a greater number children attended private classes or preps classes so as to prepare themselves for the selective or competitive national examinations (Marimuthu, et al., 1991).

In the Cameroonian context, there is shortage of literature on this practice. Though shadow education is quite visible at all levels of the educational system, national researchers till date has not attempted a definition of the phenomenon.

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The phenomenon of preparing candidates has considerably gain ground in Cameroon to the extent that it has become very difficult to walk for a distance in the metropolitan cities like Yaounde, Douala, Bafoussam, Bamenda, Buea, Maroua etc. without noticing a sign board advertising the activities of these groups. Preps groups constitutes an aspect of shadow education. Due to the increase desire in the youths to join the public sector coupled with the inability of government to accommodate all the graduates, competitive entrance examinations has become the best alternative used to selected meritorious candidates out of a hundred of thousands. Due to this competition, candidates are required to seek for extra academic follow up and the preps groups appear to be a better destination for them. Thus, the present paper seeks to examine the impact of the effectiveness of preps groups on the training of candidates for competitive entrance examinations into advanced schools in Cameroon.

LITERATURE REVIEW

Shadow education, private tutoring or tuition, or supplementary education is a form of learning which takes place outside the organised classroom, formal or mainstream education. The shadow education is seen by a good number of people as a golden opportunity to candidates and students who intends to boast their educational level. A number of terms have been used to refer to shadow education. Shadow education is known as additional instructions (OCED, 2016), after school programs, after-school time, alternative education, cram school, engaged activities, extended learning (Gromada & Shewbridge, 2016), extra curricula activities (NRC, 2015), group learning, outside school time (Noam & Shaw, 2013), private supplementary tutoring, summer learning (Alexander et al. 2007). In addition to the various appellation, a number of countries both in the developed and less developed economies used context based concepts to refer to shadow education. According to Kobakidze and Suter (2020), shadow education is referred to as “Juku” in Japan, “hagwon” in South Korea, “buxiban” in Taiwan, and in Greece, private tutoring is known as “parapedia”.

Over the last decades, the phenomenon of shadow education has considerably gain ground both in the developed and less developed economies. This practice is perceived as a worldwide phenomenon since it is practiced in almost all part of the world. According to Cole (2020) shadow education or private tutoring is very special in Sri Lanka. Cole (2015) in a study found out that there is a substantial increase in educational stratification in Sri Lanka and that among the categories of private household expenditure on education, only expenditure on tutoring is widespread, growing, and concentrated among advantaged families. This therefore proofs that shadow education has gradually become a supplement to mainstream or formal education especially to wealthier families who can afford for the tuition fees.

In a number of studies (Bray, 2009; Mikhaylova, 2019; Tsiloglu, 2005; Sato, 2012; Christensen, 2019; Zhang, 2017; George, 1992, & Bray, 1999) scholars has attempted to define shadow education. According to Bray (1999) shadow education is a form of education which take place out of the formal system of education. He further argues that shadow education is defined by three parameters which include supplementation, privateness and academic subjects. Correspondingly, Marimuthu et al., (1991) perceived shadow education as a process whereby a considerable number of youths attends private classes as a means to prepare themselves for competitive examinations. They went further to argue that shadow education or private tutoring was so prevalent that it could be called “shadow educational system”. This further portrays the importance of shadow education. The phenomenon has become so viral that some families pays much attention to it. This is why Marimuthu et al., (1991) described the way shadow education mimicked the mainstream, growing as the mainstream grew and changing shape as the mainstream changed shape.

For Stevenson and Baker (1992) shadow education is “a set of educational activities that occur outside formal schooling and are designed to enhance the student’s formal school career”. In their perception, Stevenson and Baker (1992) were concerned with two categories of activities. The first category involves secondary school tutoring in private cram schools, correspondence courses, and individual tutorial sessions. The second category occurs immediately after the secondary schooling in institutions known as “Yobiko” which prepares candidates intensively either to resit university entrance examinations or entrance examinations into advanced training schools. They concluded by adding that shadow education are activities which are firmly rooted in the informal sector.

Shadow education is categorised to after school programmes, extended education and outside school time. Bae and Kanefuji (2018) argues that after-school programmes involves activities which take place after the normal school time, generally in the afternoon, which both includes fee-free and free charging activities organised by public institutions. This may include holidays classes which some schools generally organise in order to cover up the programmes. Similarly, Stecher et al., (2013) argues that extended education is a category of shadow education which takes into consideration both the in-school and out-of-school activities. Meanwhile, Suter (2016) argues the outside-school time does not only include academic courses but also religious education and informal learning through visits to museums, summer camps etc.

Preps classes or preparatory groups is a type of shadow education. The preps groups are seen as the partner’s number one to candidates who are preparing for entrance examinations either for job placement, for certification or for entrance

into prestigious training schools of the country (Bray, 2020). Preps groups provides candidates with much needed support since that prepare them both intellectually, morally and psychologically on how to address questions in these exams. This extra academic follow-up is provided by private individuals or promoters. This is why Bray (1999) argues that shadow education is primarily concerned with tutorials provided by private entrepreneurs and individuals for profit making purposes. Referring to preps classes or groups, Baker et al., (2001) argues that preps classes are “structured, outside school activities for improving student’s mathematics achievement. They also argue that preps groups portray the image of outside school learning activities used by students to improve their own educational opportunities and performance.

In trying to portray the diversity of shadow education, Buchmann et al., (2010a) argues that it does not only involved preparation for SAT entrance examinations, but also to activities that can be considered beyond the school programmes. In their analysis, the authors do not perceive shadow education as only limiting to expensive preparatory courses but also moderately priced test preparation manuals and computer software programs. In a study by Malik (2017) it is stated that the definition advanced by Bray in 1999 might have been appropriate at the time. But now the field of shadow education has grown substantially to include “many paid and supplementary activities which are designed to improve student’s academic learning such as pre-recorded lectures, online and paperback exercises, guide books and solved exercises..., which are not tutoring but in characteristics and nature... are part of shadow education system”. Grodsky (2010) in contrast to Buchmann et al., (2010a) argues that some of the activities were “not shadowy at all; they are widely available free of charge to most students” and that “the only true forms of shadow education here are private test preparation courses and private tutors”.

In the Cameroonian context, shadow education has become so viral that it is hard to work for some distance in metropolitan cities like Yaounde, Douala, Buea, Garoua, Bamenda, Bafoussam, etc. without seeing a sign board advertising the activities. The preparatory groups or preps groups is the more common form of shadow education in Cameroon. Although shadow education is not limited to this activity alone, it is seen as a key aspect of shadow education. In a study by Mouchikpou (2021), it is argued that preparatory groups are initiatives developed by private individuals, promoters and entrepreneurs with the main purpose of assisting candidates preparing for competitive entrance examinations into prestigious advanced schools of training and learning. These groups are commonly known as “Groupe de Prepa concours”. The recent decades have witness a dramatic increase in the number of preps groups across the four corner of the territory. The growing importance of these preps groups is as a result of the fact that succeeding in a competitive entrance examination is seen as an elitist achievement. A good number of the youthful population are of the view that the public sector secures financial stability required to live a decent life. This account for the reason why most candidates, parents and families are ready to go extra miles as far as seeking unorthodox means to ensure the admission of their peers into these advanced schools.

The adoption of competitive entrance examination as the only means of selecting candidates into these advanced schools of the country has further intensified competition among the aspirants. This has come as a result of the fact the number of aspirants has drastically increases coupled with the inability of the government of the republic to absorb all the under graduates, graduates and post graduates of the system (Cole, 2016). Competitive entrance examinations refer to that period of the year when students organised themselves into learning groups or join a preparatory group in order to better prepare themselves before going in for the examinations. They are purely selective tests organised by recognised bodies to select meritorious candidates out of a hundred of thousands aspirants. According to Jean (2017) there exist two types of admission system worldwide. That is, the open system and the selective system of admission. McGrath et al., (2014) argue that the open system involves an open admission of candidates into universities basing on files composition. With this system, candidates are not required to under further test before being admitted into these schools. The open admission system admits everyone basing on the grade system. The selective system is one which is considered in this paper. The selective system requires aspirants to undergo other admission test before being admitted. This test is generally known as competitive entrance examination and admission test. The purpose of this test is to select meritorious candidates out of a hundred of thousands.

METHODS

The present paper seeks to examine the impact of the effectiveness of preparatory groups in the training of candidates for entrance examinations into advanced training schools in Cameroon. The study is purely quantitative nature. The research design adopted in this study is the deductive research design which implies testing hypothesis. The study is conducted in Yaounde, precisely Yaounde III subdivision commonly known as “plateau Atemengue”. The population of study comprises of candidates, ex-candidates, promoters, teachers and staff of the preparatory. A sample size of 515 participants, both males and females, purposefully selected were retained for this study. A close ended and self-completed questionnaire was used to collect data from the participants. The instrument of data collection was constructed in accordance to the Likert scale of measurement which provided the participants with a variety of responses ranging from strongly agree (4) to strongly disagree (1). In order to elaborate on the results of the study,

two theoretical approaches were considered; that is, Hannan and Freeman Ecology of organisation theory (1989) and Avery's sustainable leadership theory (2005) which seeks to argue the effectiveness of preps groups in the preparation of candidates largely depends on the ability of the promoters to make corresponding managerial practices considered to be indispensable in the success of any organisation or institution. The data collected from the field was analysed through the statistical data analysis techniques, precisely the simple linear regression analysis. This was effective through the use of the SPSS, version 21. The data analysed resulted to the findings below.

RESULTS

The present paper seeks to address the impact of the effectiveness of the preparatory groups on the training of candidates for entrance examinations into advanced schools of training and learning in Cameroon. In all, 10 items were designed in a questionnaire to test the effect of the effectiveness of the preparatory groups on the training of candidates. The descriptive statistics conducted reveals that majority of the participants either agree or strongly agree to the various statements. The data analysed reveals the results below. All the tables below reveal the linear regression test conducted to determine the effect of the effectiveness of the preparatory groups on the training of candidates for competitive entrance examinations into advanced schools of training and learning in Yaounde.

Table 1: Model summary table

Model Summary^b				
Model	R	R Square	Adjusted Square	R Std. Error of the Estimate
1	.374 ^a	.140	.138	3.27894

a. Predictors: Effectiveness PGs

b. Constant: Training of candidates

Source: Fieldwork, 2023.

In the model summary table above presents the linear regression results of the effect of the effectiveness of the preparatory groups on the training of candidates for entrance examinations. It is revealed that there exist a positive and strong linear relationship between preparatory groups effectiveness and the training of candidates with a Pearson's correlation coefficient of $r = .374$. The regression model predicted 14.0% of the variance. The model was therefore a good fit for the data ($F(1,513) = 83.218, p < .000$).

Table 2: Analysis of variance table

ANOVA^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	894.718	1	894.718	83.218	.000 ^b
	Residual	5515.488	513	10.751		
	Total	6410.206	514			

a. Dependent Variable: Training of candidates

b. Predictors: (Constant), Effectiveness of PGs

Source: Fieldwork, 2023.

The analysis of variance was used to determine the level of the relationship between the effectiveness of the preparatory groups and the training of candidates. This is known as the F test. The linear regression F test has the null hypothesis which stated that the effectiveness of the preparatory groups has no statistically significant effect on the training of candidates for entrance examinations at $p = .05$. As such a significant regression equation was established with $F(1,513) = 83.218, p = .000$. The test is highly significant. Hence, we can assume that there is a statistically significant relationship between the effectiveness of the preparatory groups and the training of candidates for entrance examinations into advanced schools of training in Cameroon.

Table 3: Table of coefficients

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized	T	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	20.778	1.149		18.076	.000
	IV1	.331	.036	.374	9.122	.000

a. Dependent Variable: Training of candidates

b. Predictors: (constant), Effectiveness of PGs

Source: Fieldwork, 2023.

The simple linear regression model established, indicates that the effectiveness of preparatory groups had a positive β coefficient. The slope coefficient for the effectiveness of the preparatory groups is 374. This means that the effectiveness of the preparatory groups at a constant of zero, training of candidates will be 18.076. That is; ($t = 18.076$, $p < 0.000$). Thus, any unit increase in the effectiveness of the preparatory groups will result to 0.374 increase in the training of candidates. At 5% level of significance and 95% confidence level, effectiveness of the preparatory groups had a 0.000 level of significance, largely less than the alpha (0.05). we therefore conclude that the effectiveness of the preparatory groups has a statistically significant effect on the training of candidates for competitive entrance examinations into advanced schools of training in Cameroon.

DISCUSSIONS

Preparatory groups constitute an important aspect of shadow education in the Cameroonian context as these groups provides the candidates with the most needed assistance for entrance examinations. The regression analysis was used to accept or refute the relationship between the independent variable (effectiveness of the preparatory groups) and the dependent variable (training of candidates). The dependent variable was therefore regressed on the independent variable. The independent variable (effectiveness of the preparatory groups) significantly predict the training of candidates, $F(1.513) = 83.218$, $p < 0.001$. Also, the $R^2 = 14.0$ depicts that the model explains 14.0% of the variance in the training of candidates. Moreover, regression coefficient was further assessed to ascertain the effect of the independent variable (effectiveness of preparatory groups) on the dependent variable (training of candidates). The results revealed that the effectiveness of the preparatory groups exerts a significant and positive influence on the training of candidates ($B = .374$, $t = 18.076$, $p = 0.000$). Thus, the research hypothesis is accepted which states that the effectiveness of the preparatory groups has a significant and positive effect on the training of candidates for competitive entrance examinations into advanced schools of training and learning in Cameroon.

The above results demonstrate the need for an effective management of the preparatory groups. In order to provide quality training for candidates, preparatory groups are therefore tasked with the responsibility of ensuring a safe and peaceful learning environment for candidates so as to facilitate the assimilation of lessons. Effective management of the preparatory groups thus requires the promoters to critically handle a number of elements. This include the definition of the content of the training programs, provision of teaching materials, securing of permanent infrastructures where classes will take, providing a safe, calm and peaceful learning environment as well as recruiting qualified teachers capable of convincing the candidates. The effectiveness of the preparatory groups thus appears to be an indispensable element in the training of candidates for entrance examinations into advanced schools in Cameroon. This requires the promoters to develop a well committed teaching staff.

Basing on the findings above, the effectiveness of the preparatory groups is a strong determinant of the success of candidates in entrance examination. this is so because the quality of the training candidates receives in a group determine their level of competitiveness. In order to ensure the effectiveness of the preparatory groups as well as to gain a competitive advantage over the competitors, the promoters, the staff, the teachers and all those involve in this initiative are required to perform a number of task so as to guarantee the satisfaction of the candidates. These groups are in the informal sector and its survival largely depends on the ability of the managing body to handle with delicacy all the aspects related to training. The above results either converge or diverge with those of other scholars in the domain.

In a study conducted by Kobakidze and Suter (2020) on the global diversity of shadow education, the authors found out that shadow education is not something which is only closely related to developing countries but also to developed countries. They argued that private tutoring, shadow education, hagwon, buxiban, juku or extended learning provides the students with much needed assistance in the course of preparing for entrance examinations or official examinations. It is believed that the effectiveness of shadow education takes into consideration the achievement of

stated objectives. This requires the managers of these groups to make sure that resources are effectively managed so as to enhance the achievement of predefined objectives.

In a similar study, Bray (2020), argues that the effectiveness of shadow education takes into account the satisfaction of candidates and students. He argued that the effectiveness of this form of education relies on the quality of teaching, student's engagement, motivation, as well as socioeconomic background. He further argues that shadow education or private tutoring or out-of-school programs offer valuable support and academic benefits to those who receive it since it mimics the formal system of education.

In the same light, Zhang and Bray (2020), found out that shadow education, though is in the informal system and takes place in an unorganised setting and is generally not controlled and provided by individuals serves as a baseline for improving students' performance. They argued that shadow education fills the gap which the formal system cannot. To them, the effectiveness of preps groups lies in the fact that it helps in the mastery of subjects as students generally received personalised attention and also targeted instructions which improves their understanding and proficiency in specific subjects. Preps groups are also considered to be effective as it helps candidates to prepare for entrance examinations, whether competitive or not. This is why Suter (2016) found out that preps groups or shadow education helps candidates to prepare themselves for standardised tests, college entrance exams, competitive entrance exams, as well as other high-stakes assessments.

Finally, the effectiveness of private tutoring or shadow education lies in the fact that it serves as a source of confidence and motivation for candidates preparing for entrance examinations either for job placement or for entrance into prestigious training schools or elitist schools in some countries. It is in this respect that Christensen (2019) argues that preps groups or preps classes provide self-efficacy to students as it helps to boost their confidence, self-esteem, as well as belief in their abilities to succeed in these examinations. Supporting the view of Christensen (2019), Cole (2020) argues that shadow education serves as a source of motivation to students as it provides them with positive and much needed reinforcement indispensable for their success in these examinations.

CONCLUSION

Preps groups constitute an important aspect of shadow education in Cameroon. These groups, though in the informal sector are generally known as educational projects. They are educational projects for the simple reason that they are conceived to provide an everlasting solution to the challenges faced by candidates. The shadow educational system plays a vital role in shaping the academic of students in both national examinations and competitive entrance examinations into advanced schools of training. This out-of-school activity provides the students and candidates with extra academic follow-up required for their success. The effectiveness of these groups in the training of candidates lies in the ability of the promoters and entrepreneurs to effectively manage the activities in these groups. This requires them to use 21st skills such as communication, collaboration, cooperation, critical thinking skills and so on. This means that the achievement of the stated objectives largely depends on the ability of the promoters to effectively handle the matters of the groups. By understanding the complexities of shadow education, as well as its impact on the learning outcomes of students, educational actors can make informed decisions and strive to create an inclusive and supportive learning environment for all students. Zhang (2017) found out in his study that shadow education is very effective as it helps in improving academic performance of students at all levels of the educational systems. This is because shadow education is associated to the improvement of student's academic performance, high scores in examinations, as well as better grades in school subjects.

REFERENCES

1. Alexander, K.L., Entwisle, D.R., & Olson, L.S. (2007). Lasting consequences of the summer learning gap. *American Sociological Review*, 72: 167-180. <https://doi.org/10.1177/000312240707200202>
2. Avery, G.C. (2005). *Understanding leadership*. Sage Publications, London.
3. Bae, S.H., & Kanefuji, F. (2018). A comparison of the afterschool programs for Korea and Japan: From the institutional and ecological perspectives. *International Journal for Research on Extended Education*, 6: 27-48. <https://doi.org/10.3224/ijree.v6i1.04>
4. Baker, D.P., Akiba, M., Le Tendre, G., & Wiseman, A.W. (2001). Worldwide shadow education: Outside-school learning, institutional quality of schooling, and cross national mathematics achievement. *Educational Evaluation and Policy analysis*, 23(1): 1-17. <https://doi.org/10.3102/01623737023001001>
5. Bray, M. (1999). *The shadow education system: Private tutoring and its implications for planners*. Foundation of Educational planning 61. Paris, France; UNESCO International Institute for Educational Planning (IIEP).
6. Bray, M. (2009). *Confronting the shadow education system: What government policies for what private tutoring?* Paris, France: UNESCO International Institute for Educational Planning (IIEP).

7. Bray, M. (2020). Shadow education in Europe: Growing prevalence, underlying forces, and policy implications. *ECNU Review of Education*, 4, East China Normal University. <https://doi.org/10.1177/2096531119890142>
8. Buchmann, C., Condrón, D.J., & Roscigno, V.J. (2010a). Shadow education, American style: Test preparation, the SAT and college enrolment. *Social Forces*, 89(2): 435-462. <https://doi.org/10.1353/sof.2010.0105>.
9. Christensen, S. (2019). *Shadow education and Scandinavian educational culture: Some preliminary observations*. PowerPoint for lecture at Jawaharlal Nehru University, New Dehli, 14 March.
10. Cole, R. (2015). *Free education, equity, and private educational spending in Sri Lanka*. Doctoral dissertation: New York University. <http://search.proquest.com/docview/1688757778>.
11. Cole, R. (2016). Estimating the impact of private tutoring on academic performance: Primary students in Sri Lanka. *Education Economics*, Routledge: Taylor & Francis Group. <https://doi.org/10.1080/09645292.2016.1196163>
12. Davis, S. (2014). School choice by default? Understanding the demand for private tutoring in Canada. *American Journal of Education*, 110(3): 233-255. <https://doi.org/10.1086/383073>.
13. George, C. (1992). Time to come out of the shadows. *Straits Times*, 4 April: 28.
14. Gonondo, J. (2017). Africa and China Higher Education Cooperation: Establishing knowledge sharing partnership between students. *Journal of Education and practice*, 8(10): 17-28.
15. Grodsky, E. (2010). Learning in the shadows and in the light of day: A commentary on shadow education, education, American Style: Test preparation, the SAT and college enrolment. *Social Forces*, 89(2): 475-481. <https://doi.org/10.1353/sof.2010.0063>.
16. Gromada, A. & Shewbridge, C. (2016). *Student learning time: A literature review*. OECD Education Working Papers, 127. Paris: OECD Publishing.
17. Hannan, M.T., & Freeman, J.H. (1989). *Organisational Ecology*. Cambridge, MA: Harvard University Press. <https://doi.org/10.4159/9780674038288>
18. Kobakidze, M.N. & Suter, L.E. (2020). The global diversity of shadow education. *European Journal of Education*. <https://doi.org/10.1111/ejed.12411>
19. Malik, M.A. (2017). Shadow education: Evolution, flaws, and further development of the term. *Social Sciences and Education Research Review*, 4(1): 6-29.
20. Marimuthu, T., Singh, J.S., Ahmad, K., Lim, H.K., Mukherjee, H., Osman, S., & Jamaluddin, W. (1991). *Extra-school instruction, social equity and education quality in Malaysia*. Singapore: International Development Research Centre.
21. Mikhaylova, T. (2019). *Shadow Education-Russian edition. Presentation to the first meeting of Asian Scandinavian Network on shadow education*, Danish School of Education, Aarhus University, Copenhagen.
22. Mounchikpou, M.L. (2021). *The training of candidates for competitive entrance examinations into higher schools of training in Cameroon: Analysis of the management of some of the selected preparatory groups in Yaounde III*. Unpublished Master's Dissertation, Faculty of Education: University of Yaounde I.
23. National Research Council. (2015). Identifying and supporting productive STEM programs in out-of-school settings. <https://www.nap.edu/catalog/21740/identifying-and-supporting-productive-stem-programs-in-out-of-school-settings>. <https://doi.org/10.17226/21740>
24. Noam, G. & Shaw, A. (2013). *Afterschool, informal science and the assessment predicament: A Game-Changing Strategy*. PEAR – Program in Education, Afterschool, and Resilience. Cambridge, MA.
25. OECD. (2016). PISA 2015 results (Volume 11): Policies and practices for successful schools. Paris, France: OECD Publishing.
26. Sato, Y. (2012). *One hundred years of Juku and fifty years of juku associations*. Tokyo, Japan: Federation of private Tutoring Associations.
27. Stecher, L., Maschke, S., Klieme, E., Fischer, N., Dyson, A., & Bae, S.H. (2013). Editorial. *International Journal for Research on Extended Education*, 1(1): 3-4.
28. Stevenson, D.L., & Baker, D.P. (1992). Shadow education and allocation in formal schooling: Transition to university in Japan. *American journal of Sociology*, 97(6): 1639-1657. <https://doi.org/10.1086/229942>
29. Suter, L.E. (2016). Outside school time: An examination of science achievement and non-cognitive characteristics of 15-year olds in several countries. *International journal of science education*, 38(4): 663-687. <https://doi.org/10.1080/09500693.2016.1147661>
30. Tsiloglu, L. (2005). *Frontistiria in Greece: History and people*. Athens, Greece: Kedros.
31. Zhang, W. (2017). *Shadow education as a global phenomenon: Evolving patterns and lessons from East Asia* (pp. 6-9). Chiba, Japan: Chiba Juku Associations 30th Anniversary Magazine.
32. Zhang, W., & Bray, M. (2020). Comparative research on shadow education: Achievements, challenges, and the agenda ahead. *European Journal of education*, 55(3): 322-341. <https://doi.org/10.1111/ejed.12413>