

Factors Affecting Educational Productivity at Private Elementary Schools in Indonesia

Teguh Triwiyanto^{1,*} Suyanto² Lantip Diat Prasajo² Yudi Wardana² Junaidin²

¹⁾ Faculty of Education, Universitas Negeri Malang, Malang, Indonesia

²⁾ Post-Graduated School, Universitas Negeri Yogyakarta, Yogyakarta, Indonesia

*Corresponding author. Email: teguhtriwiyanto.2018@student.uny.ac.id

ABSTRACT

This study was conducted to know the factors affecting the educational productivity at private elementary schools in Indonesia. The study population was 70 Muhammadiyah elementary schools in Sleman Regency. The fixed samples were 24 schools, using random sampling, and the respondents were the headmasters. The instrument of data gathering used valid and reliable questionnaires. This research was used as track analysis that was form of modification from regression analysis where the researched independent variables did not only affect to the dependent variables, but also affected the variables indirectly. The independent variables had direct and indirect effects to the dependent variables. The study results showed the factors affecting the educational productivity at private elementary schools in Indonesia.

Keywords: *Educational Productivity, Private Elementary Schools, Education in Indonesia*

1. INTRODUCTION

Terms of educational productivity and school are oftenly changed with the same intent, it means that a good school would have good productivity, and vice versa. Peslak (2005) stated that it was happened the paradox of educational productivity terms, effects of the technological improvement in educational institutions. The educational productivity could be seen in aspects of psychology (Walberg, 1980), financing (Annabi, 2017), characteristics of school, teachers, and class (Goldhader et al., 1999), test value of students (Young et al., 1996). Whereas, school productivity is form of efficiency (McMillan, 2004; Levin, 1997; Pope, 2015), related with school accountability (Kim, 2018), and school independency (Banda et al., 2017).

In order to know level of educational productivity, there are various measuring technics and analysis. Hanushek & Ettema (2017) stated that basicly, productivity is about how many outputs that could be produced per unit of input. In measuring productivity in education, firstly we must to definite input and output. The oftenly used analyzes to measure educational productivity were ratio of student-teacher, expenditure per student, cumulative input, problem of output, possibility of alternative actions of educational results (high school graduation, matriculation/graduation/remediation to university, job), and test as direct measure

of output. Hoxby (2003) stated that the productive school produce high achievement of students in every expended fund. Formally, productivity is defined as achievement of every expended fund, and control for the differences in incoming students' achievements.

The school could be productive because of applying efficiency in school management. In fact, the measures of productivity could not differ between public and private elementary schools, and if there is difference in school financing, there is not any difference in other things. In Indonesia, all elementary schools get operational aids from the government, and the private elementary schools are permitted to get educational fund from the community, but not for public elementary schools. It means that the educational productivity could be achieved by all kinds of school, both private or public schools by applying good educational management.

This study was conducted to evaluate independence role (X) to productivity (Y). Their relationship was mediated by accountability (Mod). It meant that the independence increased the accountability fistly and then it increased productivity. In addition, participatory also played role in the relationship among the three variables. Participatory could decide wheter the independence increased or did not increase the productivity. The assumption was strong independence would increase the productivity only by participatory. Participatory could

also be moderator in satisfactory role to productivity. High educational productivity that is not followed by participation in the community would not make them loyal. The community would not definitely take care with the school if the school do not involve them.

2. METHOD

The method of survey conducted by this research was casual technic. The gathered data was analyzed by analysis path. The purpose was to explain the direct and indirect effects from a set of exogenous variables to set of endogenous variables, in order to know structural relationship between exogenous and indogenous variables and to know how much were the direct effects, indirect effects, and are the effect of direct, indirect, and total effects from endogenous variables to exogenous variables.

Based on the explained theory of factors affecting the educational productivity, then the dependent variable was productivity, the independent variable was independence, and mediator variables were accountability and participatory. Statistically, the mediator variables were realized in form of variables of multiplication between predictor and the mederator. In this research, the mulptiplication between participatory and independence was named by part-indep, whereas the multiplication between accountability and independence was named by accoun-indep. Picture 1 reflects the arrow from participatory to relationship with indepence and productivity shows that participatory becomes the moderator the relationship.

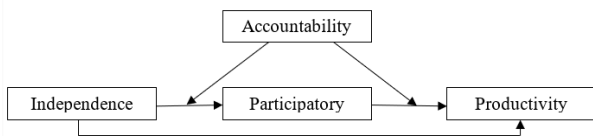


Figure 1 Mediator & Moderator in A Model

The study population was 70 elementary schools of Muhammadiyah in Sleman Regency, which has been fixed become 24 schools using random sampling, and the respondents were the headmasters. The utilized scale was Rating Scalae with five categories of answer choices: (a) always, (b) often, (c) sometimes, (d) rarely, and (d) never.

The instruments were tested firstly before being used in the research. The tests of instruments consisted of test of validity and test of reliability. The test results have given the valid and not valid items of instrument. The invalid instruments were not used in the research. The steps of data analysis were test of normality of each data, writing the form of structural relationship among variables, calculating path coefficient, and conducting test of significance of path coefficient.

3. RESULT

Based on Table 1, it could be seen that accountability-independence (account-indep) did not have role to accountability with the standard coefficient of regression of 0.205 and $p > 0.01$. Participatory did not have role to accountability with test value of standard coefficient of regression of 0.105 and $p > 0.01$, participatory-independence (part-indep) had direct effect to accountability with the standard coefficient of regression of -0.023 and $p < 0.01$, independence had direct role to accountability with the standard coefficient of regression of -0.750 and $p < 0.01$, and participatory had direct role to productivity with the standard coefficient of regression of -5.096 and $p < 0.01$.

Based on Figure 2, it could be explained that total of direct effects was 11.44% and total of indirect effects was 8.11%. Since the indirect effect was smaller than the direct effects, it could be said that there was not any role of mediation in this model, in other words, participatory was not the mediator of relationship between independence and productivity.

Table 1. Regression Weights

Item		Item	Estimate	S.E.	C.R.	P	Label
Accountability	<---	Account-Indep	.205	.003	67.449	***	
Accountability	<---	Participatory	.105	.261	.403	.687	
Accountability	<---	PartIndep	-.023	.062	-.373	.709	
Accountability	<---	Independence	-.750	.295	-2.541	.011	
Productivity	<---	Participatory	-5.096	1.710	-2.980	.003	
Productivity	<---	PartIndep	1.181	.403	2.934	.003	
Productivity	<---	Independence	-7.124	2.177	-3.273	.001	
Productivity	<---	AccounIndep	.339	.279	1.215	.224	
Productivity	<---	Accountability	-1.714	1.359	-1.261	.207	

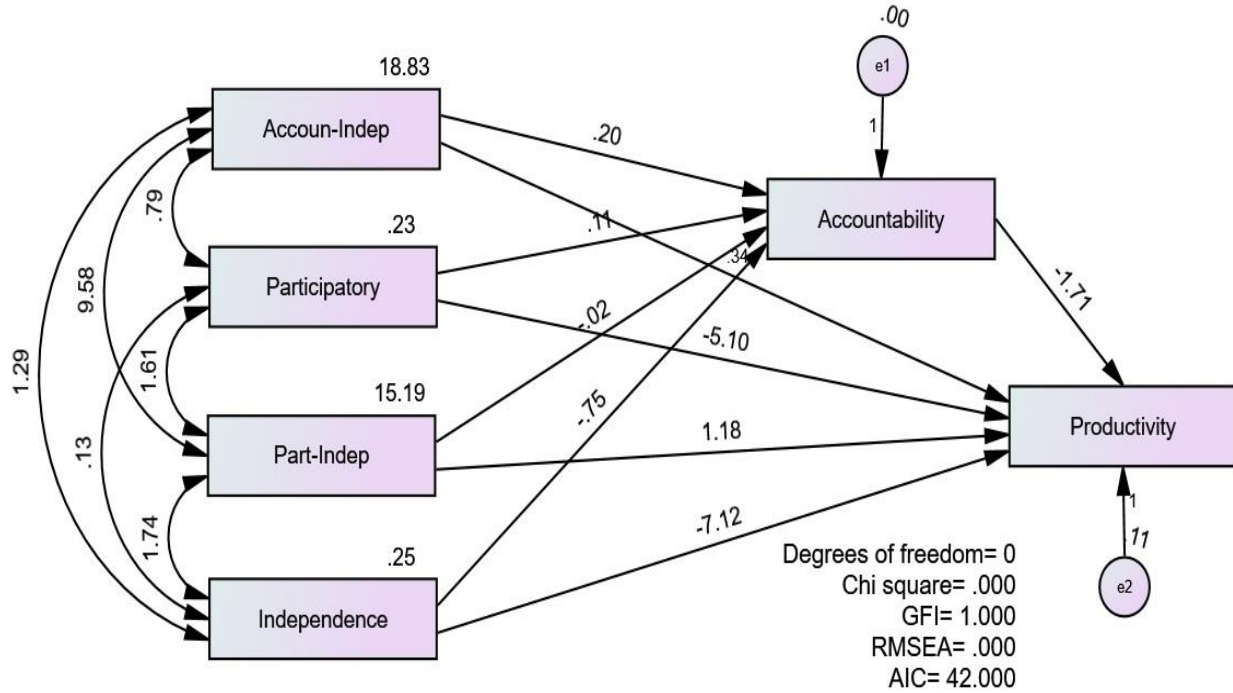


Figure 2 Analysis Result

4. DISCUSSION

All this time, private schools are known by the independence, because they are supported and founded by community, the role of government are not so dominant, it is different with the public schools that almost of their needs are met by the government. The study results showed that the principles of independence of the private schools consist of decision making is performed democratically by involving all elements of school, conducting mobilization of resources by involving all elements of school, problem solving is conducted by effective communication, the school makes the anticipative actions to the educational innovations so that it could be synergetic to meet the needs of school by itself, and school makes adaptive actions to the educational innovations so that it could be synergetic to meet the needs of school by itself. Independence has role to accountability and productivity of the school.

The school independence could make school commitments, which usually become tradition or culture of the institution, because private school is under the protection of the foundation which has ideas and works in life of the community. Karadağ et al. (2011) stated that there are direct and indirect relationship between school culture and school commitment, there are many potential variables affecting school commitment and culture. (James & Lunnon, 2019) stated that private school independence has challenge of how to find method to harmonize the commercial strategy of school with the educational mission. One of the principles that could make private school being continued to growth dan

develop in Indonesia is strong participation. Participative principle at private school almost becomes an inevitability, because main sources of financing of this school kind is participation of the community. The study results showed that the participation could be seen in forms of: participation of all related stakeholders with school in school management, participation of all related stakeholders with school participation in decision making, and school committee is involved in school activities incidentally. The forms of community participation to school is contribution of labor, fund, infrastructure, and technical help to develop the school. Participatory has direct role to educational productivity.

In Indonesian context, participation is unique because the backgrounds of social, culture, and religion of private school would determine the strong or weak participation of the certain group of community, including alternative of educational financing. Mutiarin et al. (2016) stated that in Indonesia, privates schools with basic of religion generally are issued as very elite, targeted to category of rich people, having good school facilities and qualified teachers, or most of them are poor, supplied for the marginalized students, located in dilapidated building, and the teachers are less prepared. Alderman et al. (2001) stated that the poorest families would use the private schools extensively, and the use would increase with the incomes. Decreasing the cost of private school or distance or increasing the quality that could be known from the students registration of private school, in a part using transfer from public schools and in other part using the children registration who should not going to school.

School accountability becomes decisive entrust of private school development, and it could be seen in level of responsibility related to system of management of the school or foundation. Here are the aspects of accountability: performing responsibility of school programs implementation, responsibility could be conducted writtenly and valid, and responsibility could be conducted unwrittenly with the administrative evidences that are valid. This study results have found that accountability had direct role to productivity. This school accountability would make adaptations with the changes of knowledge, technology, and culture of the community. Chakraborty & Harper (2017) stated that in past study, it has found that the lack of competition in public commodities supply was one of the reasons of bad performance and quality at public schools. As policy for school reformation, if the parents are permitted to prefer the school for their children in the scenario of market-control such as proposed by some reformists of education, then a good school would interest more students and a bad school would loss the students. Wei et al. (2018) stated that the family income and people density could affect students' performance, this has confirmed the importance of environmental context in academic performance of students. Erdag (2017) stated that the pressure of academic performance of the school stakeholders has created more supports for the school policy concerning about market accountability, whereas the pressure of bureaucratic performance has created resistance to the policy of performance accountability. For they who more like to perform the rule to teach would give responsibilities for what they have done to top level bureaucracy.

In fact, the final purpose of the accountability is productivity, which has main focus to customers: students' achievement. Unfortunately, there are many uncontrolled variables by school and the involved teachers in forming the students' achievement. Shanahan & Walberg (1985) stated that the uncontrolled variables by teachers (number of completed homeworks, watching television, parents' involvement in education) have explained many variations of students' achievement. However, the controlled variables by school, such as quantity and conformity of academic instructions, were found to explain a number of differences of the meaningful achievements in education. Keith (1982) stated that the increase of homework demand and more tight assessment could increase the students' achievement and self-confidence at school.

The educational productivity could be achieved by good school management to get effectivity and effectiveness. Scheerens (2016) stated that educational effectivity is integration of factors in levels of system, school, and class. Johnes et al. (2017) stated that the efficiency could be happened when outputs of education (such as test result or additional value) are produced in lowest level of resources (financially or students' innate

competencies). In education, management could be implemented in process and substance of educational management. In process of educational management, education could be performed in planning (Kerzner, 2019), implementing (Dragoset et al., 2017), controlling (Zuchowski, 2019), and evaluating (Roshani et al., 2019). Whereas the substantial elements of educational management consist of curriculum and learning (Zeng, 2019), students (Vilà et al., 2019), teachers and educational personels (Singh & Prasher, 2019), educational fund (Akinsuroju et al., 2019), infrastructures (Mathur et al., 2019), and participation of community (Ezenwaji et al., 2019).

The education becomes one of productive sectors in crisis era, it means that in emergency situation, education becomes one of flexible institutions in responding to the condition. Such as the pandemic time of today which stated by World Health Organization (WHO) as disease of coronavirus 2019 (covid-19), caused by severe acute respiratory syndrome of coronavirus 2 (sars-CoV-2), stated since 12 March 2020, the educational productivity still must be supported, although by daring learning, because all schools are closed. Aparicio et al. (2018) stated that the economic crisis has required the politicians to make ongoing public finance. The sector of education is one of the most affected sectors by control of public expenditure. During the economic crisis, the school has increased their total of factor productivity by increasing academic achievement although it existed the resources decrease. There was strong pattern of convergence during the financial crisis, supported by similar process at some schools.

In supporting the educational productivity, this study results showed that it could be conducted by improving the variables of participatory, accountability-independence (account-indep), and accountability. Hill & Bonan (1991) stated that the school productivity must be directed to the real changes in school level, it is also strategy of basic reformation in school system, performed by developing the character, purpose, and good style of school operational; whereas the main accountability of school system is usually the choices of parents. Keddie & Holloway (2019) stated that in achieving good school productivity, it needs reformation in school autonomy, in one side, and increasing the external accountability and obedience of the school, in other side. Hutt & Polikoff (2020) have consolidated the importance of this accountability, they stated that public accountability through expressing the information is pillar of effort of modern educational reformation.

5. CONCLUSION

From this research, the factors affecting the educational productivity of private elementary schools in Indonesia, showed the followings: participatory-independence (part-indep), independence, participatory,

independence, and accountability. This research also indicated that there was not any role of mediation in this model, in other words, participatory was not mediator of the relationship between independence and productivity. In supporting the educational productivity, this study stated that it could be conducted by improving the variables of participatory, accountability-independence (account-indep), and accountability.

REFERENCES

- [1]. Akinsuroju, O. E., Anyanwu, O. M., & Akinwande, B. O. (2019). Management Funding Strategies and Administrative Effectiveness of Private Universities in Ogun State, Nigeria. *KIU Journal of Humanities*, 3(4), 145–153.
- [2]. Alderman, H., Orazem, P. F., & Paterno, E. M. (2001). School Quality, School Cost, and the Public/Private School Choices of Low-Income Households in Pakistan. *The Journal of Human Resources*, 36(2), 304–326. JSTOR. <https://doi.org/10.2307/3069661>
- [3]. Annabi, N. (2017). Investments in education: What are the productivity gains? *Journal of Policy Modeling*, 39(3), 499–518. <https://doi.org/10.1016/j.jpolmod.2017.03.003>
- [4]. Aparicio, J., López-Torres, L., & Santín, D. (2018). Economic crisis and public education. A productivity analysis using a Hicks-Moorsteen index. *Economic Modelling*, 71, 34–44. <https://doi.org/10.1016/j.econmod.2017.11.017>
- [5]. Banda, G. N., Nyengere, J., & Chinkhata, D. (2017). Factors contributing to continued dependence on family food and income among graduate farmers of School of Agriculture for Family Independence (SAFI). *Journal of Agricultural Extension and Rural Development*, 9(9), 202–206. <https://doi.org/10.5897/JAERD2017.0880>
- [6]. Chakraborty, K., & Harper, R. K. (2017). Measuring the Impact of Socio-Economic Factors on School Efficiency in Australia. *Atlantic Economic Journal*, 45(2), 163–179. <https://doi.org/10.1007/s11293-017-9542-x>
- [7]. Dragoset, L., Thomas, J., Herrmann, M., Deke, J., James-Burdumy, S., Graczewski, C., Boyle, A., Upton, R., Tanenbaum, C., & Giffin, J. (2017). School Improvement Grants: Implementation and Effectiveness. NCEE 2017-4013. In National Center for Education Evaluation and Regional Assistance. National Center for Education Evaluation and Regional Assistance. <https://eric.ed.gov/?id=ED572215>
- [8]. Erdag, C. (2017). Accountability Policies at Schools: A Study of Path Analysis. *Educational Sciences: Theory and Practice*, 17(4), 1405–1432.
- [9]. Ezenwaji, I. O., Otu, M. S., Ezegbe, B. N., Okide, C. C., & Eseadi, C. (2019). Community participation in quality assurance in secondary school management: The case of school-based management committee (SBMC). *Quality Assurance in Education*, 27(1), 24–40. <https://doi.org/10.1108/QAE-10-2017-0069>
- [10]. Goldhader, D. D., Brewer, D. J., & Anderson, D. J. (1999). A Three-way Error Components Analysis of Educational Productivity. *Education Economics*, 7(3), 199–208. <https://doi.org/10.1080/09645299900000018>
- [11]. Hanushek, E. A., & Ettema, E. (2017). Defining Productivity in Education: Issues and Illustrations: The American Economist. <https://doi.org/10.1177/0569434516688207>
- [12]. Hill, P. T., & Bonan, J. (1991). Decentralization and Accountability in Public Education.
- [13]. Hoxby, C. M. (Ed.). (2003). *The economics of school choice*. University of Chicago Press.
- [14]. Hutt, E., & Polikoff, M. S. (2020). Menuju Kerangka Akuntabilitas Publik dalam Reformasi Pendidikan. *Educational Researcher*, 0013189X20931246. <https://doi.org/10.3102/0013189X20931246>
- [15]. James, D., & Lunnon, J. (2019). *The State of Independence: Key Challenges Facing Private Schools Today*. Routledge.
- [16]. Johnes, J., Portela, M., & Thanassoulis, E. (2017). Efficiency in education. *Journal of the Operational Research Society*, 68(4), 331–338. <https://doi.org/10.1057/s41274-016-0109-z>
- [17]. Karadağ, E., Baloğlu, N., & Çakir, A. (2011). A Path Analysis Study of School Culture and Teachers' Organisational Commitment. *Policy Futures in Education*, 9(5), 573–584. <https://doi.org/10.2304/pfie.2011.9.5.573>
- [18]. Keddie, A., & Holloway, J. (2019). School autonomy, school accountability and social justice: Stories from two Australian school principals. *School Leadership & Management*, 0(0), 1–15. <https://doi.org/10.1080/13632434.2019.1643309>
- [19]. Keith, T. Z. (1982). Time spent on homework and high school grades: A large-sample path analysis. *Journal of Educational Psychology*, 74(2), 248–253. <https://doi.org/10.1037/0022-0663.74.2.248>

- [20]. Kerzner, H. (2019). *Using the Project Management Maturity Model: Strategic Planning for Project Management*. John Wiley & Sons.
- [21]. Kim, J. (2018). School accountability and standard-based education reform: The recall of social efficiency movement and scientific management. *International Journal of Educational Development*, 60, 80–87. <https://doi.org/10.1016/j.ijedudev.2017.11.003>
- [22]. Levin, H. M. (1997). Raising school productivity: An x-efficiency approach. *Economics of Education Review*, 16(3), 303–311. [https://doi.org/10.1016/S0272-7757\(96\)00069-6](https://doi.org/10.1016/S0272-7757(96)00069-6)
- [23]. Mathur, M., Jain, N., & Pandey, S. K. and A. (2019). Institutionalising quality of care in inpatient facilities for the management of severe acute malnutrition in India. *Field Exchange* 59, 9.
- [24]. McMillan, R. (2004). Competition, incentives, and public school productivity. *Journal of Public Economics*, 88(9), 1871–1892. <https://doi.org/10.1016/j.jpubeco.2003.06.003>
- [25]. Mutiarin, D., Budiraharjo, M., Nurmandi, A., Mulyani, R., & Baskara, R. (2016). Private School's Response to Government Policy A Case Study of Catholic and Muhammadiyah Participatory Roles in Education. 1(1), 25.
- [26]. Peslak, A. R. (2005). The educational productivity paradox. *Communications of the ACM*, 48(10), 111–114. <https://doi.org/10.1145/1089107.1089143>
- [27]. Pope, N. G. (2015). How the Time of Day Affects Productivity: Evidence from School Schedules. *The Review of Economics and Statistics*, 98(1), 1–11. https://doi.org/10.1162/REST_a_00525
- [28]. Roshani, K., Owlia, M. S., & Abooi, M. H. (2019). A research note on the article of “Quality framework in education through application of interpretive structural modeling.” *The TQM Journal*, 31(1), 3–10. <https://doi.org/10.1108/TQM-12-2017-0168>
- [29]. Scheerens, J. (2016). Theories on Educational Effectiveness and Ineffectiveness. In J. Scheerens (Ed.), *Educational Effectiveness and Ineffectiveness: A Critical Review of the Knowledge Base* (pp. 259–289). Springer Netherlands. https://doi.org/10.1007/978-94-017-7459-8_11
- [30]. Shanahan, T., & Walberg, H. J. (1985). Productive Influences on High School Student Achievement. *The Journal of Educational Research*, 78(6), 357–363. <https://doi.org/10.1080/00220671.1985.10885631>
- [31]. Singh, A., & Prasher, A. (2019). Measuring healthcare service quality from patients' perspective: Using Fuzzy AHP application. *Total Quality Management & Business Excellence*, 30(3–4), 284–300. <https://doi.org/10.1080/14783363.2017.1302794>
- [32]. Vilà, R., Aneas, A., Rubio, M. J., & Freixa, M. (2019). The value of student engagement for Higher Education quality assurance: Moving away from the regulatory approach. <https://doi.org/10.15366/reice2019.17.2.006>
- [33]. Walberg, H. J. (1980). *A Psychological Theory of Educational Productivity*.
- [34]. Wei, Y. D., Xiao, W., Simon, C. A., Liu, B., & Ni, Y. (2018). Neighborhood, race and educational inequality. *Cities*, 73, 1–13. <https://doi.org/10.1016/j.cities.2017.09.013>
- [35]. Young, D. J., Reynolds, A. J., & Walberg, H. J. (1996). Science Achievement and Educational Productivity: A Hierarchical Linear Model. *The Journal of Educational Research*, 89(5), 272–278. <https://doi.org/10.1080/00220671.1996.9941328>
- [36]. Zeng, M. (2019). Research on the Construction of Vocational College Modular Curriculum System of Logistics Management Major Based on Sino-German Cooperation. 857–861. <https://doi.org/10.2991/iccse-19.2019.185>
- [37]. Zuchowski, I. (2019). Working together and external supervision. In F. Gardner, J. Theobald, N. Long, & H. Hickson (Eds.), *Field Education: Creating successful placements* (pp. 33–45). Oxford University Press. <https://www.oup.com.au/books/higher-education/health,-nursing-and-social-work/9780190310059-field-education>.