



The Centrality of the Teacher Education Process in Promoting Sustainability and Sustainable Development

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Abstract

Sustainable development and societal transformation has gained significant importance in global agenda. Social learning processes will be needed to contribute to real change which is why the 2030 Agenda (UN, 2015) and the Global Action Programme pick up on the importance of education and establish it as one of their priorities. Strengthening the competencies of multipliers is one goal on the way to ensuring inclusive, quality education for all and to empowering everyone to support sustainable development. This goes hand in hand with the question of what knowledge and abilities teachers should acquire in order to be active change agents and what is needed to make the development of appropriate competencies possible. However, the transformations in higher learning in Kenya have not been examined to establish the extent to which sustainability has been integrated. The aim of the current study is to explore, the centrality of the teacher education process in promoting sustainability and sustainable development in Kenya. The theoretical framework of the present research is based on the socio-psychological model of sustainable behaviour. *Ex post facto* cross-sectional design was used and purposive sampling methods will be used to select four institutions of higher learning in Kenya. A structured self-response questionnaire and interview schedule. Quantitative data was analyzed by the use of descriptive and inferential statistics with the aid of the Statistical Package for Social Sciences (SPSS) version 24.0. The study findings presents significant implications for teacher preparation strategies for sustainable development in education. The study findings also sheds light on the state of preparedness as well as advances made in Kenyan higher education in compliance with global trends in best practices for teacher education in the face of sustainable development.

Key words

Sustainable education; teacher preparation; higher learning; 21st century skills; transformative pedagogy

Introduction

Bell (2016) aptly observed that Ministries of Education around the world are abuzz with exciting conversations and significant policy commitments around twenty-first century education. But unless they are looking at this topic through a sustainability lens, they will be missing some of its most important elements. And yet, a separate discourse has emerged about 21st century education that, while outlining important 21st century skills and competences, typically makes no mention of ESD and arguably pays insufficient attention to the sustainability challenges that will likely define the prospects for human existence on this planet beyond the next century (Pipere, Veisson, & Salite, 2015).

Alkhalwaldeh (2017) argued that teacher education for sustainable development is an educational paradigm that considers life-long professional development and learning of teachers as the main hub of teaching practice. Sustainability and sustainable development have recently become widely discussed in the educational arena, in general, and in teacher education and development, in particular. For example, Salite (2015) called for the reorientation of teacher education towards sustainable development. At the heart of the debate on sustainable professional development of teachers, there is the shift from



traditional one to more school-based teacher professional development, which the present study attempts to address. Recently, sustainable education and teacher education integration into the wider system of higher education and teacher education milieu have attracted the attention of policy makers, educationists and researchers who are willing to make these people care about issues and concepts that relate to climate change and global warming among other related global issues and concerns. Teacher education is being viewed to take the lead and consider such issues. Teachers are urged to equip themselves with new skills and high standard professional knowledge to assume new roles and responsibilities in sustainable education in their societies (Kabaday, 2016). Teacher education in the context of sustainable education should abandon conventional teaching models and shift to a transformative model of education to account for the twenty-first-century humanity demands for living sustainably in a globalized world (Bell, 2016). With this new trend in teacher education, teachers are essentially required to exhibit teacher renewal and professionalism.

According to Williamson and McDiarmid (2008), the continuum of teacher learning as well as teacher education turns out to be indispensable in a lifelong learning process which implies the demand for extended teacher professionalism. This implies that teacher education and learning, which the present study is premised on, should continue through the whole teacher development and should feature all teacher experiences during career long learning.

Eslamian, Jafari, and Neyestani (2017) also claim nowadays educational systems have an important mission for responding to the needs of different communities. The complex organizational nature of educational centers, accompanied by evolving pedagogies, requires multiple professional development strategies to effectively address needs, respond to emerging trends in teaching and learning and facilitate improvements (Mohammadi & Moradi, 2017). Sustainable development of education is impossible without the professional competence of teachers. Special attention should also be paid to the training of teachers, youth leaders and other educators (UNESCO, 2005). In this way, the problem of improving the teachers' professional competence is relevant in terms of sustainable development of education (Korsun, 2017), and for educational improvement, teacher professionalism is essential (Reid & Horváthová, 2016). Yoo (2016) has argued that to ensure sustainable development, educators should focus on studies related to teacher programmes. In order to provide a sustainable development field in the higher education system, the quality of faculty members educating should be considered.

Continuous professional development can help teachers not only understand sustainable development concepts and issues but also experience life-long learning, thus becoming responsible mentors for sustainable education. It requires teachers to be learners, researchers, and collaborators, to reflect on their teaching practices and improve professional proficiency (Mohammadi & Moradi, 2017). Understanding teachers' professional proficiency and their training needs, government and university level policies and directives can provide more targeted in-service courses or workplace learning support for teachers to attain their goals for sustainable development (Kabadayi, 2016). The present paper reports on an exploratory investigation into the teacher's professional proficiency and training needs of Singapore Chinese Language (CL) teachers with various backgrounds. The findings of the study suggest the forms and priorities of training for in-service teachers to help them become a powerful agent of sustainable teaching.



According to Gaudiano, Meira-Cartea and Martínez-Fernández (2015), sustainability's incorporation into Higher Education institutions is a relatively new process. Its history can be traced back to the foundation of the Environmental Sciences Formation International Center in 1975. Then in 1985, the University and Environment in Latin America and Caribbean Seminary was founded in Bogotá, Colombia. However, despite progress, sustainable development is not yet a finished concept. In the literature, the definition of sustainable development, proposed in 1987 by the Brundtland Report (UNESCO. 2017), is widely accepted: The development that satisfies the needs of the present generation, without compromising the capacity of the future generations to satisfy their own needs. It is a paradigm to think in a future where the environmental, social and economic considerations are balanced in the search of a better life quality.

The sustainable development concept initially had a political connotation. Later, "sustainability" was used in a more critical sense that had been lost over time. Some IES conventionally used either concept, without considering the implications (Gaudiano, Meira-Cartea and Martínez-Fernández, 2015; Martínez-Fernández & Gaudiano, 2015). According to Gutiérrez and Martínez (2010), the emphasis was first on the environment, but sustainable development now emphasizes social, economic, political and religious dimensions. As these polysemic concepts of sustainable development and sustainability developed, environmental education emerged as a strategy to understand and address the growing environmental problems.

Methodology

The study used an *ex post facto* cross sectional survey design. It was conducted among Bachelor of Education students in selected institutions of higher learning in Nakuru County, Kenya. Multi-stage sampling procedure was used to generate the final sample for this study. First, stratified sampling procedure was used to group the target population into two strata based on university ownership. One stratum was public universities (4) and the other private universities (3). To calculate the sample size of each stratum the proportional allocation method allowed the sample size of the strata to be kept proportional to the population of the strata (Kothari, 2014).

Data was collected by means of a self-response questionnaire comprising demographic items and sustainable teacher education scale. The tool yielded a split half reliability coefficient of 0.86 which was considered sufficient for the purpose of this research.

Results

Collected data was mainly quantitative and therefore analysis was used descriptive statistics and inferential statistics by means of statistical tools with the aid of computer software, the Statistical Package for Social Sciences (SPSS) version 25.0.

A sample of 376 respondents filled the questionnaire, resulting in a response rate of 94%, which was considered good for survey research not only according to Babbie (1995), but also according to the findings of Asch and Colleagues (1997). The observed mean age was 22 years with standard deviation of 2.23. Among respondents 216(57.4%) were male while 160(42.6%) were female. It was also observed that 16(4.3%) of respondents were married, 356(94.7%) single, 4(1.1%) neither married nor single, a category designated. Data revealed that 118(31.4%) of respondents were public while 258(68.6%) were from private universities. It was observed that 297(79%) were full time mode of study compared to 79(21%) who were enrolled on online and distance learning. Data revealed that 250(66.5%)



of the respondents were in second year compared to 67(17.8%) who were in fourth, 35(9.3%) third, 19(5.1%) first while 5(1.3%) belonged to other years of study.

Teacher Education Process

Teacher education process was made operational by means of 11 items measuring the perceptions of respondents. Each participant in the study was required to respond to a 5-point Likert scale ranging from 1 = *Totally Disagree* to 5 = *Totally Agree*. The scale was graded and the numbers in between the first and the last were not verbalized so that respondents' level of agreement was measured on an ascending continuum from total disagreement to full agreement. The results are presented in Table 1

Table 1
Respondents Perception of Open and Distance Learning

	Level of agreement									
	1		2		3		4		5	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Item 1	44	11.7	40	10.6	80	21.3	32	8.5	180	47.9
Item 2	56	14.9	28	7.4	68	18.1	56	14.9	168	44.7
Item 3	76	20.2	28	7.4	64	17	56	14.9	152	40.4
Item 4	52	13.8	76	20.2	48	12.8	36	9.6	164	43.6
Item 5	36	9.6	64	17	64	17	60	16	152	40.4
Item 6	64	17	48	12.8	56	14.9	36	9.6	172	45.7
Item 7	60	16	24	6.4	68	18.1	68	18.1	156	41.5
Item 8	48	12.8	40	10.6	48	12.8	72	19.1	168	44.7
Item 9	76	20.2	28	7.4	56	14.9	44	11.7	172	45.7
Item 10	88	23.4	16	4.3	60	16	44	11.7	168	44.7
Item 11	84	22.3	24	6.4	68	18.1	40	10.6	160	42.6

The findings presented in Table 1 indicate a general perception of teacher education process was highly rated by respondents. It was observed that respondents who felt that lecturers are able to clearly state philosophies of sustainable education accounted for 56.4% compared to 59.6% respondents who felt that the lecturers are able to identify sustainability content knowledge and 55.3% lecturers are able to practice sustainability oriented pedagogy and instructional design. Respondents who felt that lecturers are able to use sustainability appropriate assessments accounted for 53.2%. In addition, respondents who felt lecturers were able to seek professional growth and collaboration as Education for Sustainability teachers 56.4% compared to 55.3% of respondents who indicated that lecturers actively participate in sustainability activities in the university. The statement that lecturers usually integrate sustainability issues in lecture time interactions yielded 59.6% of responses while those who felt that the assignments they do in class usually include some sustainability aspects accounted for 63.8%. it was observed that respondents who felt lecturers are good role models in responsible waste management accounted for 57.4% compared to 56.4% who felt that lecturers are good role models in maintaining water efficiency. Finally, respondent show felt that lecturers are good role models in energy efficiency accounted for 53.2% of the total sample.

Overall Perceptions of Teacher Education Process

A dummy variable that grouped the perception index to *low*, *moderate* and *high* was generated to explore the distribution of overall perception of teacher education process. Out of the 55 possible points comprising 11 items where each had 5 possible point, the

transition points were <18 and >36 for low and high perception index respectively and moderate perception at >18<36. The frequencies for each category were run and the results are presented in Figure 1

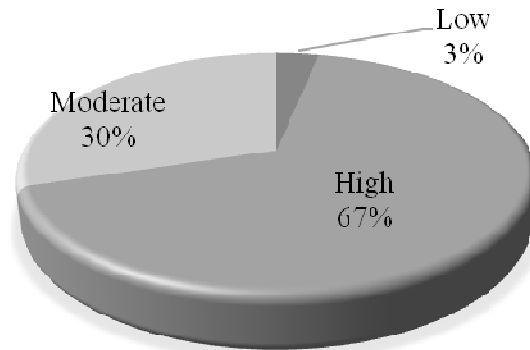


Figure 1: Overall Respondents Perception of Teacher Education Process (N = 376)

Data presented in Figure 1 indicates that high percentages of respondents perceived teacher education process clustered around the High zone 252(67%) followed by Moderate 112(30%) and then low 12(3%). Combining the moderate and high perception levels gives a total of 97% of respondents who felt that the mode was viable.

To measure the role of teacher education process in promoting sustainability and sustainable development in institutions of higher learning, a correlation analysis was done for the various demographic variables taken to be key factors in the perception of teacher education. The findings are presented in Table 2

Table 3

Correlation Matrix for Teacher Education Process and Demographic Characteristics

		1	2	3	4	5	6
1. Age	Coefficient						
	Sig. (2-tailed)						
2. Gender	Coefficient	-0.087					
	Sig. (2-tailed)	0.093					
3. Marital Status	Coefficient	-0.059	-.165**				
	Sig. (2-tailed)	0.256	0.001				
4. Type of University	Coefficient	-0.062	-0.067	0.007			
	Sig. (2-tailed)	0.227	0.194	0.887			
5. Academic Status	Coefficient	0.001	0.058	-.157**	-0.017		
	Sig. (2-tailed)	0.992	0.263	0.002	0.743		
6. Year of Study	Coefficient	.703**	-0.1	0.054	-0.079	.110*	
	Sig. (2-tailed)	0	0.053	0.297	0.125	0.034	
7. Perception of SSD	Coefficient	0.01	0.069	0.08	-0.063	0.042	0.011
	Sig. (2-tailed)	0.849	0.184	0.122	0.22	0.421	0.831

Chi-square test of significance for age factor in the perception of SSD yielded $\chi^2=34.075(df=20)$ $p = 0.026$ which was statistically significant. It was therefore concluded that age was a significant factor in the perception of SSD. Similarly, gender factor yielded $\chi^2=7.444(df=2)$ $p=0.024$ which was statistically significant. This implied that there was observed significant difference in the perception of SSD based on gender. Similarly,



respondents' marital status yielded $\chi^2=10.394(df=4)$ $p=0.034$ which was statistically significant, implying that marital status influenced perception making it central to sustainability SSD. Finally, it was observed that type of university yielded $\chi^2=1.51(df=2)$ $p=0.47$ which was not statistically significant. It was therefore concluded that university placement does not significantly influence the perception of SSD.

Conclusion

From the findings of this study, it can be concluded that sustainability and sustainable development is largely dependent on the teacher education process. These render impetus for the teacher education process and its role in sustainability and sustainable development. This in turn presents significant implications for the sustainability and sustainable development in other sectors. The most important implication of this study is that institutions of higher learning draw their clientele from a cross section of Kenyan society. With a large sample coming from different regions of Kenya, the research findings provide useful insights into the students perception of teacher education process which was viewed in this study as an antecedent to sustainability and sustainable development in Kenya.

Recommendations

First, this was a cross-sectional descriptive survey where the data collection tool was administered at only one point in time. Taking cognizance of the effect of time in shaping of attitudes towards phenomena it is reasonable to suppose that perceptions of teacher education might change during a student's academic progression, and this possibility (along with reasons for any changes) would be worth investigating.

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