EDUCATION FOR SUSTAINABLE DEVELOPMENT AND GLOBAL CITIZENSHIP: A SITUATION ANALYSIS OF GHANA'S EDUCATION LAWS, STANDARDS AND BASIC SCHOOL CURRICULUM.

Andy Ofori-Birikorang,
aobirinkorang@uew.edu.gh

Samuel Abeiku Hayford,
Skahayford1259@gmail.com

Dandy George Dampson,
dgdampson@gmail.com

Christina Hammond,
chammond@uew.edu.gh

Mavis Amo-Mensah,
mamensah@uew.edu.gh

Ernest kwasi Amponsah,
kwasiamponsah@ymail.com

&

Richardson Addai-Mununkum,
raddaimununkum@gmail.com
University of Education, Winneba

Abstract

Following the United Nation's adoption of the Agenda 2030 resolution, and the African Union's implementation of Agenda 2063, Ghana, as a member of the United Nations and African Union is expected to institute measures to ensure the attainment of these ambitions. Given UNESCO's recognition of inclusive equitable quality education as pivotal in the achievement of all the SDGs, questions remain as to how Ghana, through its educational policy and curricula, is prioritizing the attainment of SDGs. This paper is the outcome of a situational analysis conducted to determine the connectedness of Ghana's educational policies, legal documents, and curriculum to Agenda 2030. Following a research framework and instruments provided by the Global School Pilot Project's Secretariat, seven (7) Ghanaian educational policy documents together with twenty (20) K-6 curriculum documents were analyzed to highlight gaps, and explore linkages, and synergies, between the content of these documents and the Agenda 2030 Education learning outcomes. From the analysis, it was observed that more recently formulated policy documents had a higher prevalence of SDG concepts and competencies compared to documents promulgated before 2015. It was also observed that some explicit references were made to SDGs and Learning Objectives in the K-6 curriculum but they were focused on a section of the SDGs and concentrated in a few subjects. Significant sections of the SDGs received very few to no mentions at all in the entire K-6 curriculum. Based on these findings, recommendations are made for the review of outdated educational policies, a forceful push for incorporation of SDGs in the under-review Grades 7-12 curriculum, and engagement of policy makers and key stakeholders on the outcome of this research.

Keywords: *Sustainable Development Goals, Curriculum, Education, Education for Sustainable Development, Ghana*

Introduction

On 25th September, 2015, the United Nations adopted the resolution called "Transforming our World: The Agenda 2030 for Sustainable Development". Agenda 2030 outlines 17 Sustainable Development Goals (SDGs) and 169 Targets as a universal roadmap to eradicate poverty, the greatest global challenge, by 2030. The SDGs, which became effective on 1st January, 2016, do not only build on the Millennium Development Goals (MDGs) but also intend to accomplish what the MDGs could not achieve. For instance, the SDGs promote human rights, gender equality, empowerment of all women and girls and, as well, foster lasting protection of the planet (UN, 2015).

UNESCO recognizes SDG 4 which aims to *"ensure inclusive and equitable quality education and promote lifelong learning opportunities for all*" as pivotal in the achievement of all the SDGs and has proposed the Global Education 2030 Framework for Action as guideline for the implementation of the SDGs (UNESCO, 2017, p. 7). The document, also known as *Education for Sustainable Development* (*ESD*), aims at developing competencies that empower individuals to reflect on their actions considering current and future socio-cultural, economic and environmental impacts, from both local and global perspectives (UNESCO, 2017).

Prior to Agenda 2030, African countries had adopted the Africa Union Agenda (AUA) 2063, which seeks, within 50 years, to make Africa prosperous based on inclusive growth and sustainable development (African Union Commission, 2015). AUA 2063 emphasizes good governance, democracy, respect for human rights, justice and rule of law. The United Nations (UN) recognizes the importance of AUA 2063 and considers it an integral component of the SDGs. Ghana has, therefore, initiated legislations and policies in support of the AUA 2063 and the SDGs. For example, Ghana has initiated a *Ghana Beyond Aid Policy* that focuses on transforming the country to ensure that every citizen has access to education, training and productive employment. The policy intends to eradicate hunger, and promote access to basic necessities of life such as healthcare, water, sanitation, and decent housing (Ghana Government, 2019; Ministry of Finance, 2018).

It is important to note that Ghana, has since 2015, embarked upon major transformation of its educational system to foster sustainable development. For example, the Education Strategic Plan (ESP) 2018-2030 is one such major transformation spearheading Ghana's roadmap towards achieving the SDGs. Policies such as this provided the foundation for this research.

This paper provides a situational analysis of Ghana's educational policies, legal documents, and K-12 curriculum. The research highlights the gaps in such documents and explores the linkages, synergies and relationships between the 2030 Education learning outcomes and the national education curriculum (K-12).

At the core of the ESD are specific learning objectives for each of the SDGs, which, in tandem with identified key competencies, will facilitate complete achievement of the Goals. In all, 255 learning objectives have been developed across the 17 SDGs. Under each SDG, 15 learning objectives are described under three learning domains of *cognitive*, *socio-emotional* and *behavioral*. The focus of *cognitive* learning objectives is knowledge and thinking skills whereas *socio-emotional* emphasizes skills to facilitate collaboration, negotiation and communication. *Behavioral* learning objectives describe competencies in taking action towards achieving the SDGs. In sum, we see the learning domains as working in a chain of activities: acquiring knowledge, communicating and collaborating, and taking action towards the attainment of SDGs. In this paper, the 255 learning objectives are used as indicators to measure the degree of *salience* and *pervasiveness* of the SDGs in Ghana's basic education curriculum.

Ghana's Educational Policies and Laws

Ghana's educational system is in three phases: Basic Education (Kindergarten, primary school, and Junior High School), Secondary Education (Senior High School, Technical and Vocational Education) and Tertiary Education (Universities, Polytechnics, and Colleges of Education). The Ministry of Education (MoE) manages the administration and coordination of the educational system. Through the introduction of new policies and laws, Ghana has since independence rolled out a number of education reforms. Some of these reforms include a reduction in number of years spent in formal education (Dampson, 2015); Free Compulsory Universal Basic Education (fCUBE) (Anamuah-Mensah, 2008; GES, 2004); and, most recently, the Free Senior High School policy.

The research, on which this paper is based, reviews the following education policies: The Education Act 778 (2008), Education Strategic Plan 2018-2030 (2018), ICT for Accelerated Development (ICT4AD) (2003), Inclusive Education Policy (IEP) (2015), National Teacher Education Curriculum Framework (2018), National Science, Technology and Innovation Policy (2017-2020) and National Pre-Tertiary Curriculum Framework (2018).

The Education Act 778 (2008), from which all educational policies and legislative instruments emanate, establishes Ghana's education system. The Education Strategic Plan (ESP) 2018-2030 provides a 12-year roadmap for education in Ghana and incorporates economic and political context of education relative to the SDGs. The ICT for Accelerated Development (ICT4AD) Policy was enacted in 2003 to transform Ghana into an information-rich knowledge-based society and economy. The Inclusive Education Policy defines the strategic path for the education of all children with special educational needs (Ministry of Education, 2015). The National Teacher Education Curriculum Framework (NTECF) provides the framework to train effective, innovative, engaging and inspirational teachers to lead change in the 21st Century classroom. The National Science, Technology and Innovation Policy (2017-2020) seeks to introduce the application and integration of science, technology and innovation to promote national development (Ministry of Environment, Science, Technology and Innovation, 2017). The National Pre-Tertiary Curriculum Framework redefines the development of curriculum at the pre-tertiary level with the aim of providing high-quality education to all children of school-going-age (Ministry of Education, 2018).

Basic School Curriculum in Ghana

Ghana practices a centralized curriculum regime for its basic education. Consequently, at the Basic level of education, a uniform curriculum is developed by the National Council for Curriculum and Assessment (NaCCA) and implemented in schools across the country. Within the basic school system, curriculum is developed for all the four stages, namely: Early Grade (K- 3) Upper Primary (4-6), Junior High (JH 1-3) and Senior High (SH1-3). It is instructive to note that, since 2008, Ghana's Basic School curriculum had not been reviewed until 2015 when the state embarked on a process of reform. The reform which is ongoing was occasioned by the need to "respond to a national priority of shifting the structure and content of the education system from merely passing examinations to building character, nurturing values, and raising literate, confident, and engaged citizens who can think critically" (Ministry of Education, 2018, p. 14). A major change in this reform is to move away from objective-based ideologies to standards-based principles, where learning outcomes are targeted through content standards, learning indicators and core competencies.

In this paper, Ghana's Basic School curriculum is subjected to scrutiny and assessed in line with the SDG learning objectives. This is important because Ghana's National Pre-tertiary Curriculum Framework (NPTCF) admits that "learners need to be guided to understand the importance of sustainable development and be able to use the knowledge and skills imparted through the various

learning episodes, to promote peace, and protect the environment from further degradation" (Ministry of Education, 2018, p. 68). It is, therefore, important to evaluate the extent to which the curriculum is making space for the attainment of the SDGs by mapping it to the ESD Learning Objectives.

Methodology

This research informing this article sought to map Ghana's education policies and laws and K-12 curriculum against ESD concepts and competencies as defined by UNESCO (2015). To do this, a mixed approach content analysis design was adopted. By this approach we aimed for the counting, description and interpretation of textual data using the systematic process of both deductive and inductive coding (Assarroudi et al., 2018; Schram, 2014). In particular, the research purposely selected and analyzed seven most relevant and most recent key education policy, planning documents and laws in Ghana (see Table 1). Our rationale for the selection was that we considered these documents as potentially influential in designing the strategies for implementing Goal 4 of the SDG in Ghana.

Table 1: Key Education Policies and frameworks in Ghana

Name of Document	Acronym
National Pre-Tertiary Curriculum Framework 2018	NPTCF
National Teacher Education Curriculum Framework 2008	NTECF
Education Strategic Plan 2018-2030	ESP
National Science Technology and Innovation Policy (2017-2020)	NSTIP
ICT for Accelerated Development (2003)	ICT4AD
Inclusive Education Policy	IEP
Education Act 778 (2008)	Act 778

While the focus of the research was supposed to be the entire Basic Education curriculum, we delimited the analysis to Kindergarten to Basic 6 curriculum (K-6) because NaCCA is currently reviewing the Basic 7-12 curricula. The reform is being conducted in phases and as of the time of this research, only K-6 curriculum was available and has been implemented in schools. We decided not to review the existing under-review Basic 7-12 curricula since any findings generated through our study will have ephemeral relevance in the near future when the new curriculum is rolled out.

Twenty (20) K-6 curriculum documents were used for the research. Two (2) of the documents comprised curriculum for Kindergarten (K1 and K2), whereas the other eighteen (18) documents were on eleven subject areas for primary schools. The list of K-6 subjects and their corresponding levels is shown in Table 2.

Table 2: List of K-6 subjects and their corresponding levels

Subjects/Grade	Acronym	Level
Computing	Cpt	Grades 4-6
Creative Arts	CA	Grades 1-3 Grades 4-6
English	Eng	Grades 1-3 Grades 4-6
French	Fre	Grades 1-3 Grades 4-6
Ghanaian Language	GhL	Grades 1-3 Grades 4-6

History	Hist	Grades 1-6
Mathematics	Math	Grades 1-3 Grades 4-6
Our-World-Our-People	OWOP	Grades 1-3
Physical Education	PE	Grades 1-6
Religious and Moral Education	RME	Grades 1-3 Grades 4-6
Science	Sc	Grades 1-3 Grades 4-6
Kindergarten	KG	NA

Documents on Ghana's education policies and laws were retrieved from online sources as well as from the repository of the Institute for Education Research and Innovative Studies (IERIS) of the University of Education, Winneba. The IERIS comprises three key research centers: Center for Education Policy Studies (CEPS), Center for School and Community Science and Technology Studies (SACOST) and the National Center for Research into Basic Education (NCRIBE). Documents on K–6 Curriculum were retrieved from the website of NaCCA. Except for the French curriculum, all the other documents were in English. An academic with advanced level literacy and fluency in French helped to translate the document into English.

Data Analysis Procedures

All the documents were read iteratively to familiarize with the data (Braun & Clarke, 2013; Creswell & Creswell, 2018). We reviewed and coded policy documents relative to the ESD indicators (*Concepts* and *Competencies*) using key words that emerged from the data as well as others provided in the GSPP Worksheet (see Table 3).

Table 3: Education for Sustainable Development (ESD) Indicators and selected keywords

Indicators	**Keywords**
Concepts	
Sustainable Development	Sustainable, development, 2030 agenda etc
Global Citizenship	Interconnectedness, social justice, cultural diversity etc.
21st Century Skills	Contemporary, technology, skills etc.
Competencies	
Systems thinking	Uncertainty, structures, complexities etc.
Anticipatory	Future, opportunity, vision etc.
Normative	Sustainability, norms, values etc.
Strategic	Innovation, collaboration, sustainability etc
Critical thinking	Analytical, reflection, critical etc.
Self-Awareness	Humanity, purpose, awareness etc
Integrated problem-solving	Complexity, solution problem etc.

Following same review of policy documents and coding processes, we also mapped the contents of each subject/level curriculum to the 2030 Education Learning Objectives. To ease data processing and analysis, acronyms were developed for all policy documents and subjects/grades (see Tables 1 and 2). As a guide, we operationalized the expression 'policy' to include all education documents,

policies, guidelines and laws in Ghana. For subject areas, we collapsed and categorized all grades into a unit relative to a particular subject. For example, a subject like Science for grades K,1,2,3,4,5, and 6 was collapsed into one unit and tagged as Science for K-6. The rationale was to ease analysis of the content relative to the ESD Learning Objectives. The data were captured on a spreadsheet, reflected on and content-analyzed.

We then weighted each policy document based on the ESD indicators to determine key references based on the GSPP Worksheet. We coded *X* for explicit references, *N* for non-explicit, and blank for non-reference. Following this path, we also included the weighting of the concepts as submitted in a Worksheet guide by attaching *1* to the *X (X1)* and *N (N1)* if the reference is 'for' and *2* as in *X2*, *N2* for the reference if it is 'through' (see GSPP Worksheet).

The overall aim of this research was to conduct a situation analysis in order to determine the prevalence of ESD indicators as well as the 2030 SDG Learning Objectives in Ghana's Education Policy Documents and Curriculum respectively. We contended that an important standard for determining the prevalence of the ESD indicators and Learning Objectives in the documents was to measure the degree of *salience* and *pervasiveness.* We therefore developed a formula to determine the degree of pervasiveness of indicators (Concept and Competency) in each policy document and Learning Objective in the Curriculum. We developed a formula each for Concepts, Competencies, and Learning Objectives. Second, we developed a model (see Figure1) to show the degree of salience of indicators and Learning Objectives using the weighting guide of X and N as provided by GSPP Worksheet guide. We however added a third weighting code of NM to represent non-mention.

1. To determine the degree of pervasiveness of a Concept in a policy document we developed the formula:

$$x = \frac{\mathrm{OC}(100)}{\mathrm{NC}}$$

Where:
x= The education policy document O*C* = Observed Concept(s)
NC = Total number of Concepts

2. To measure the degree of pervasiveness of a Competency in a policy document we developed the formula:

$$x = \frac{\mathrm{Oc}(100)}{\mathrm{Nc}}$$

Where:
x = The education policy document Oc = Observed competencies
Nc = Total number of competencies

3. To determine the degree of pervasiveness of the Learning Objectives in each subject/grade curriculum we developed the formula:

$$x = \frac{\mathrm{ob}(100)}{\mathrm{Nb}}$$

Where:
x = Subject/Grade
o*b* = Observed objective
N*b* = Total number of objectives

Tables and Figures were generated to provide a graphic representation of the results.

Findings and Discussion

The findings and analysis are in two parts. First, we present the findings and analysis for the *Concepts* and *Competencies* relative to the seven purposely selected relevant and recent key education policy, planning documents and laws in Ghana. We viewed these documents as potentially influential in designing the strategies for implementing Goal 4 of the SDGs in Ghana. Then, we follow it up with the findings and analysis of the outcomes of the learning objectives on the curriculum in Ghana. The findings and analysis were the outcomes of the coding exercise and the data generated from the education policies and curriculum as captured on the GSPP Worksheets. It is important to reiterate that in this report, we operationalize the expression 'policy' to include all education documents, polices and laws within the country.

Second, our findings and analysis were also based on the GSPP Secretariat's generated Worksheet and keyword guide as well as other keywords that emerged from our own review of the education policy documents. The guide provided that we coded *X* for explicit references, *N* for non-explicit, and blank for non-mention. Following this path, we also included the weighting of the concepts as submitted in the Worksheet guide by attaching 1 to the *X* as in(*X*1) and *N* as in (*N*1) if the reference was "for"; and 2 as in *X*2 and *N*2 for the reference if it was "through". We conducted the analysis for the *Concept* (under Indicator) using the three sub-indicators comprising *sustainable development*, *global citizenship* and *21st century skills*.

Our goal in this section of the paper is to present and discuss the findings relative to the two key indicators of Goal 4 of the SDGs - *Concepts* and *Competencies* and how these concepts and competencies have been adequately captured in the documents or how their non-inclusion or marginalization leaves gaps in our stride towards achieving SDG4.

Ghana's Education Policy Documents: ESD and Competencies Concepts

Under the sub-indicator of *sustainable development*, we found that explicit references were made in the policy documents ESP, NPTCF, NTECF and NSTI. This implied that the documents made adequate references to the concept of *sustainable development* through identified keywords and the identified documents therefore facilitated the achievement of SDG4. This revelation was not surprising as all the four policy documents were developed in the post-SDG period or within the last 3 years (2017-2019). However, the three other policy documents ICT4AD, Act 778, and IEP made no direct or indirect reference to *sustainable development*. Again, this finding was predictable as the three documents were developed either several years before the development of the SDGs or the period immediately preceding it. The implication is that a document like the Education Act 778 (2008) that is the major legal document from which all other educational policy and planning documents derive their mandate should be amended to provide a solid legislative foundation and framework for the country's SDG educational vision. Again, it is important to state that the conspicuous non-mention of *sustainable development* in important policy documents like IEP and ICT4AD heavily defeats the stride towards providing inclusive education for all by 2030.

On the two sub-indicators of *Global Citizenship,* we found explicit mentions in only two policy documents: NPTCF and NTECF. Again, the rationale for such revelation has already been captured in the preceding paragraph- both documents are situated in the post-SDG era and adequately took into consideration the demands of SDG4. Policy documents ESP,ICT4AD, IEP, NSTI and Act 778 failed to capture or make reference to the *global citizenship* concept. Furthermore, the findings are indicative of the challenges of the education system in Ghana in training the youth to become universal citizens if such five potentially influential education planning and policy documents lack the inclusion of any of the tenets of *Global Citizenship.*

The documents ESP, NPTCF and NTECF made explicit references to *21st Century skills* with the same value and level of inclusion as were covered under the earlier sub-indicators of *sustainable development* and *global citizenship*, and we explain with the same degree of rationale. ICT4AD, IEP, NSTI and Act 778 policy documents failed to make any reference to *21st Century Skills* and as such leave serious gaps in our educational bid to provide learners with the needed millennial skills. Figure 1 is a graphic representation of the findings on *Concepts*. The findings also portray the degree of salience of particular sub-indicator concept in the policy document.

Figure 1: The degree of salience of *Concepts* in Ghana's Education Policy documents

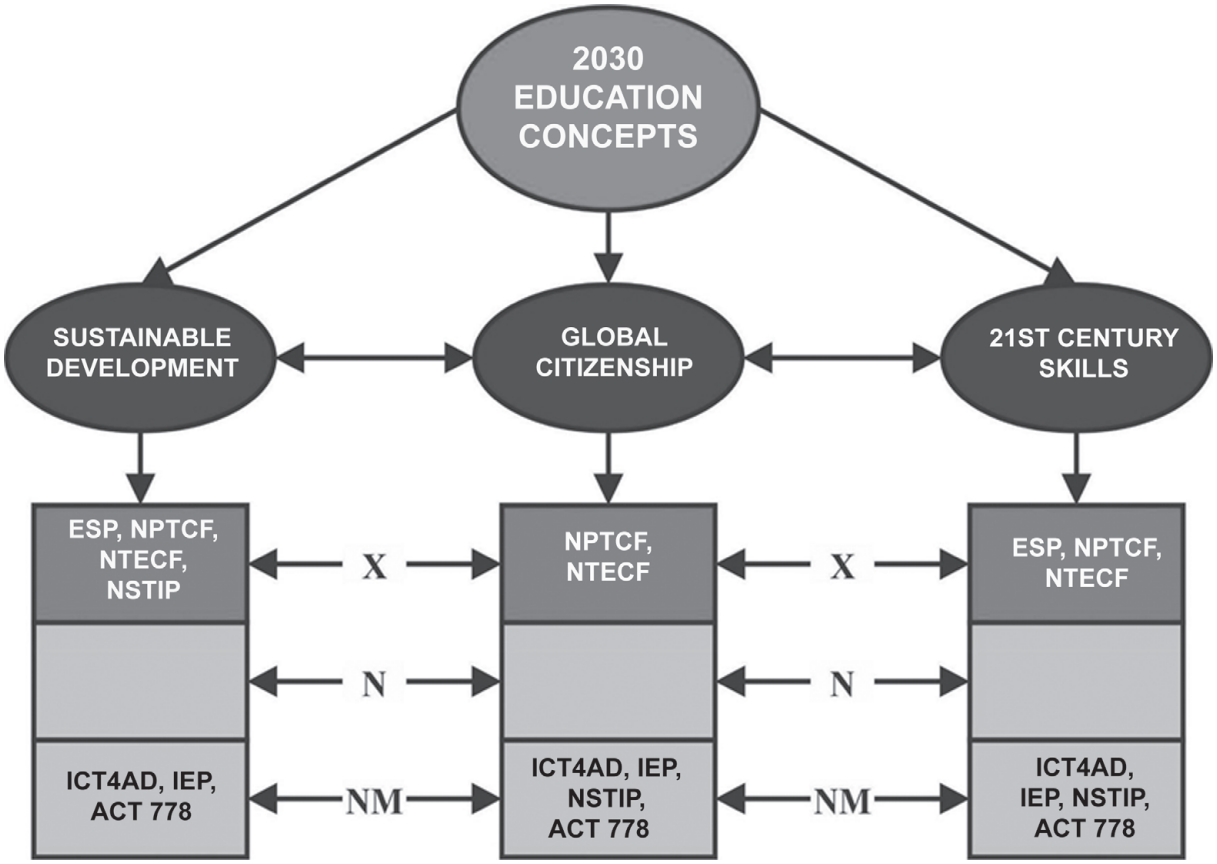


Figure 1 presents the results of the findings on *Concepts*. The diagram has a three-tiered hierarchical structure: the Indicator-*Concept* at the first level is captured in an oval design; the sub-indicators of *Sustainable Development*, *Global Citizenship* and *21st Century Skills* follow at the second level in a triad of connected-ovals; and the third tier captures the purposely selected relevant and recent Ghana's Education Policy documents embedded in rectangular blocks that also connect each other horizontally, with each block further demarcated into three sections to indicate the degree of *salience.*

At the top of the diagram is the **Concept.** It generates the three sub-indicators shown by a double header arrow indicating a direct link between the two connected tiers. The three sub-categories are also in turn linked horizontally with doubleheader arrows connecting them to indicate the fluidity and interdependent nature of the sub-indicators and how, in practice, they fuse into each other and are not, operationally, mutually exclusive. The third level of the hierarchy contains the seven policy documents and the level of salience of each sub-indicator on each policy document. Each block of documents is further demarcated into three to show the degree of salience categorized as "*X*" for explicit, "*N*" for Non-Explicit and '*NM'* for non-mention. As indicated earlier, we use the degree of

salience to determine the extent to which a sub-indicator such as *sustainable development* is prominent in a policy document like the Education Act 778 (2008). By content-analyzing the documents using generated keywords with their corresponding *X*s, *N*s and *NM*s, we are able to determine the level of salience for each document. For example, the result of the degree of *salience* of the concept *sustainable development* is indicated as follows:

X (explicit or high degree of manifest salience) - ESP, NPTCF, NTECF, NSTIP
N (non-explicit or latent degree of salience) - None
NM (non-mention or an almost total absence of salience) -ICT4AD, IEP, ACT 778
Using the model in Figure 1, the same process is followed to graphically visualize the degree of *salience* of the indicators in each policy document.

Competencies

We coded and analyzed the eight overarching competencies expected to be embodied in the seven selected policy documents. The eight *Competencies* include *systems thinking*, *anticipatory*, *normative*, *strategic*, *collaboration*, *critical thinking*, *self-awareness* and *integrated problem solving*. As indicated earlier in our methodology, keywords were generated for each competency and same were coded and analyzed.

Under the *Competency* sub-indicator of *systems thinking*, there were explicit references in two documents- NTECF and ICT4AD. We found that the explicit references were due to two factors: NTECF is a post-SDG policy document whereas the nature of the ICT4AD makes it inherently *system*-inclined. The rest of the documents: ESP, NPTCF, IEP, NSTI and Act 778 made no reference to the sub-indicator implying a huge lacuna in the documents.

Relative to the *anticipatory* sub-indicator, ESP, NTECF, ICT4AD and NSTIP made explicit references to this competency while the NPTCF and Act 778 documents made non-explicit references. IEP made no reference at all to this competency.

The *normative* competency was explicitly captured in only the three post-SDG designed documents: ESP, NTECF, and NPTCF; the ICT4AD, IEP, NSTI and Act 778 documents made no references to this competency.

The *strategic* competency was explicitly captured in ESP, NPTCF, and ICT4AD whereas the NTECF provided a non-explicit reference. However, IEP, NSTI and Act 778 made no direct or indirect references to the competency.

Collaboration as a competency appeared explicitly in only three documents- ESP, NTECF and NPCTF. On the other hand, ICT4AD, IEP, NSTI and Act 778 gave no manifest or latent references to the competency.

Critical thinking competency was also captured explicitly in only two documents: NTECF and NPTCF. The other four documents including ESP, ICT4AD, IEP, and NSTI did not superficially nor inherently reference this competency.

Self-awareness competency was referenced explicitly in four documents: ESP, NTECF, NPTCF and NSTI. The ICT4AD, IEP and Act 778 failed to represent this competency in any form in the content of the documents.

The eighth sub-indicator competency- *integrated problem-solving*, was captured explicitly in the NTECF and NPTCF documents. The rest of the policy documents including ESP, NPTCF, IEP, NSTI and Act 778 did not make any reference to keywords that indicate the presence of the competency. The above findings are represented graphically in Figure 2:

Figure 2: The degree of salience of *Competencies* in Ghana's Education Policy Documents

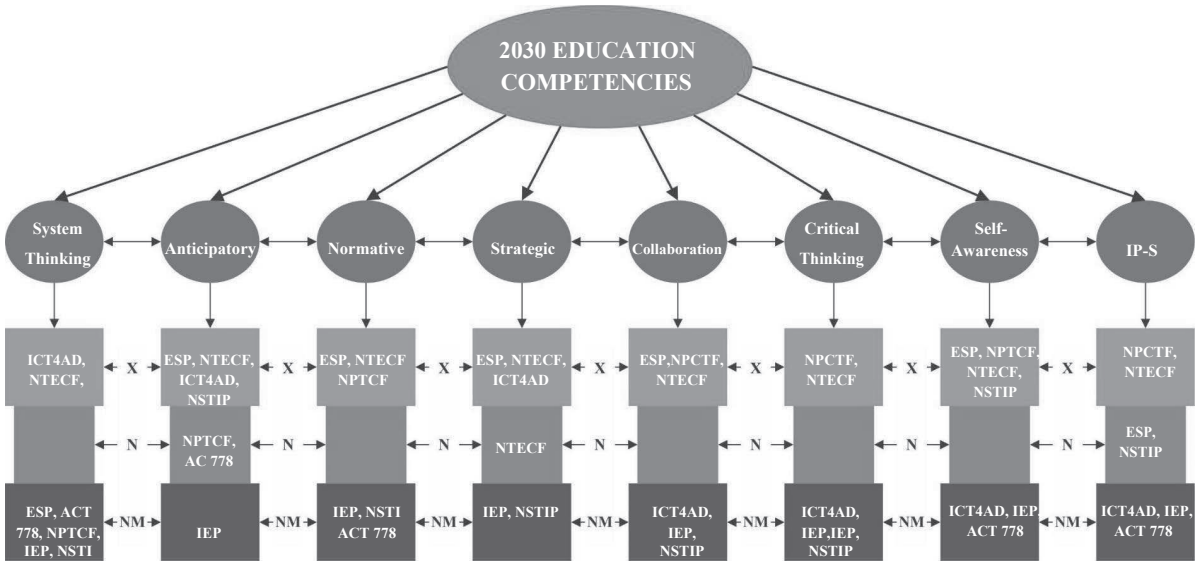


Figure 2 presents the findings on the *competencies* indicator. Similar to what was shown under the *Concepts* figure framework, the competency framework also has three-tiered hierarchical structure: Tier one, superimposed on all the others represents the indicator of *Competence* which in turn generates the eight sub-indicator competencies of *systems thinking*, *anticipatory*, *normative*, *strategic*, *collaboration*, *critical thinking*, *self-awareness* and *integrated problem solving* under Tier 2. A single arrowhead line from the *Competence* indicator points southwards towards each sub-indicator competency. Again, the eight sub-indicator competencies are linked to each other through a doubleheader arrow line to indicate the mutual inclusivity and interdependence of the eight competencies.

Tier 3 captures the purposely selected relevant and recent policy documents in Ghana embedded in rectangular boxes. Each rectangular box containing a reference of the policy documents is linked to a sub-indicator competency. The downward pointing arrowhead from a sub-indicator competency indicates the influence of the latter on the policy document and its level of *salience* in the particular document.

We can therefore graphically visualize the degree of salience, for example, of the sub-indicator Competence of *systems thinking* in the policy documents by following similar process used in assessing the degree of salience under *Concepts*. The result is,

X – ICT4AD, NTECF

N-NIL

NM- ESP, Act 778, NPTCF, IEP, NSTI

(See Figure 2 for more details)

Degree of Pervasiveness of Indicators (Concept and Competency)

We also recognized the importance of determining the extent to which an entire category of *Concepts* and an entire category of *Competencies* are pervasively captured in each document. As presented under the methodology section, we developed a formula each to determine the degree of pervasiveness of *Concepts* and *Competencies*. The formula for determining prevalence or pervasiveness of *Concepts* in a document is:

$$x = \frac{\text{OC}(100)}{\text{NC}}$$

Therefore, as an illustration, to measure the degree of pervasiveness of the entire set of *Concepts* in the NPTCF document:

x- NPTCF

O*C*- 3 (because we observed all the 3 concepts in the document)

N*C*-3 (total number of concepts is 3)

Where:

$$NPTCF = \frac{3(100)}{3}$$

Therefore, the degree of pervasiveness of *Concepts* in the NPTCF document is 100%.

The results for degree of pervasiveness of the set of *Concepts* is captured in Table 4.

Table 4: Degree of Pervasiveness of Concepts in Ghana's Educational Policy Documents

Concepts **Policy Document (x)**	**Observed Indicator(s) (OC)**	**No. of Concepts (NC)**	**% of Degree of Pervasiveness**
NPTCF	3	3	100
NTECF	3	3	100
ESP	2	3	67
NSTIF	1	3	33
ICT4AD	0	3	0
IEP	0	3	0
Act 778	0	3	0

From Table 4 above, under the *Concepts* Indicator, out of the seven policy documents selected for the study, three of them, NPTCF, NTECF and ESP had more than 60% degree of pervasiveness of the *Concepts* and therefore could be said to have adequately captured the ESD concept. It also means that the framers of the policy had adequately catered for the ESD Concepts. It is also important to note that two documents NPTCF and NTECF fully and pervasively captured the ESD Concept with a high score of 100% whilst the ESP document was laced with about two-thirds of the ideas of the ESD concepts. As said earlier, these documents were drafted within the last three years and were done in line with the SDG4.

However, the ESD Concepts in the other four documents NTSIF, ICT4AD, IEP and Act 778 contained none of the concepts or had only a third of the ESD Concept ideas (as in the case of NSTIF). It is important to state that unless these policies and laws are amended or reviewed to fully reflect the ESD *Concepts,* the country's goal of achieving the SDG4 cannot be attained.

The result for the degree of pervasiveness of the set of *Competencies* is captured in Table 5.

Table 5: Degree of Pervasiveness of Competencies in Ghana's Educational Policy Documents

	Competencies		
Policy Document (x)	**Observed Indicator(s) (oc)**	**No. of Competencies (nc)**	**% of Degree of Pervasiveness (DP)**
NTECF	8	8	100
NPTCF	7	8	88
ESP	6	8	75
NSTIF	4	8	50
ICT4AD	3	8	38
Act 778	2	8	25
IEP	0	8	0

We followed similar process to determine the degree of pervasiveness for the Indicator *Competency* and arrived at Table 5 above.

The formula for determining prevalence or pervasiveness of *Competency* in a document is

$$x = \frac{\text{Oc}(100)}{\text{Nc}}$$

Therefore, for example, to measure the degree of pervasiveness of the entire set of *Competencies* in ICT4AD document,

X=ICT4AD

O*c*= 3 (3 competencies were observed in the document)

N*c*= 8 (total number of competencies is 8)

Where:

$$ICT4AD = \frac{3(100)}{8}$$

Therefore, the degree of pervasiveness of *Competency* in the ICT4AD document is 38%.

However, we must add that the varying results of the degree of pervasiveness of *Concepts* and *Competencies* in policy documents do not represent nor suggest watertight boundaries of discrete values because the indicators in practice, fuse into each other in a more fluid rather than static pattern.

SDGs and the Curriculum

The second part of the analysis focused on the ESD Learning Objectives and how they reflect the seventeen SDGs (see Figures 3a and 3b). As indicated in the methodology, we took each SDG (1- 17) and content-analyzed its level of *salience* and degree of *pervasiveness* in the 12 subjects of the K-6 curriculum. We also reiterate that we collapsed the grades into one stream of class and mapped the subject for that entire stream (K-6) and content-analyzed for both level of *salience* and degree of *pervasiveness*. Thus, for a subject like English, we collapsed the entire K-6 grades into one stream of class and mapped the 15 Learning Objectives of each SDG to that subject to determine the levels of *salience* and *pervasiveness*. This approach eased analysis, saved time, space (since grade-by-grade analysis would have provided an over laborious documentation of findings and analysis) and, as well, easily provided an excellent bird's eye view of the ESD Learning Objectives. In this section,

we also lay more emphasis on the NM (Non-Mention) as a category of weighting since this level of salience seems to characterize almost all the K-6 subjects under study.

From the findings, there are generally huge gaps in the K-6subjects relative to the inclusion of the ESD Learning Objectives. On the average, more than 80% of the subjects under review fall under category NM (Non-Mention) of the ESD Learning Objectives. Goals 2, 5, 7, 10, 11, 12, 14 and 17 were not explicitly captured or mentioned at all in any of the subjects. Only Goals 3 and 4 have been explicitly captured in seven subjects including OWOP, PE, RME, KG, ENG, HIST, CA (see Figures 3a and 3b). Goals 1, 6, 8, 9, 13 were captured explicitly by just a single subject meaning 11 of the subjects did not make any manifest mention of the Goals to instructors and pupils. It is important to state that when any SDG-related Learning Objective is not explicitly stated in a subject of the K-6 curriculum, it would be a huge challenge for any instructor to decipher the latent content of the Goal in order to uncover and use it fruitfully for class instruction. Therefore, the paucity of the ESD Learning Objectives in the curriculum is indicative of the need to review the K-6 curriculum if the SDG framework is to be achieved. We submit that any learning objective that is not inscribed explicitly or in manifest manner would fail to promote the attainment of the SDGs.

Figure 3a: Degree of salience of *ESD Learning Objectives in* Ghana's K-6 Curriculum

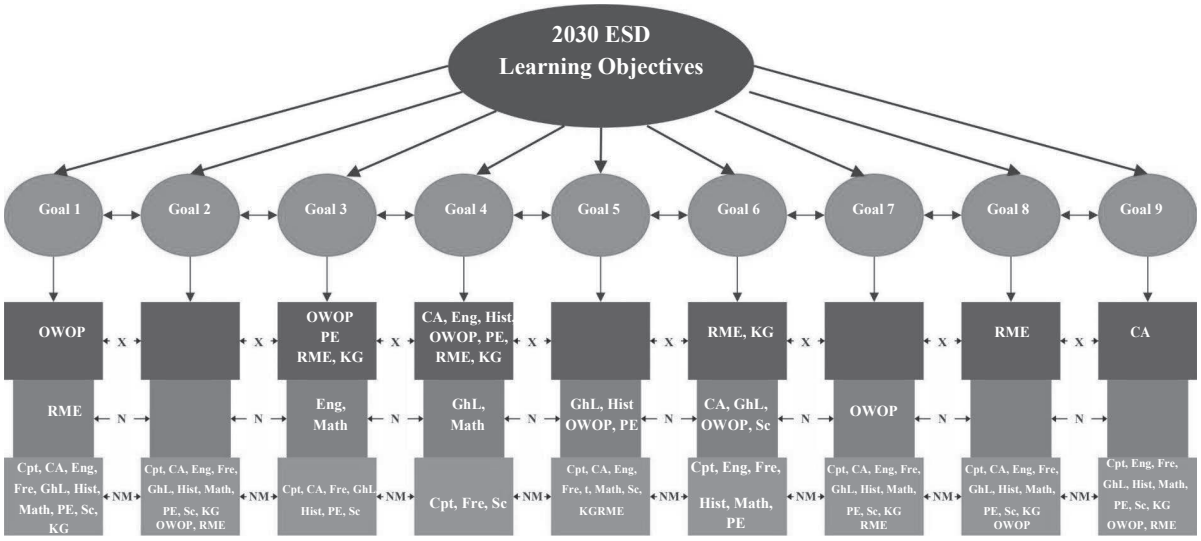
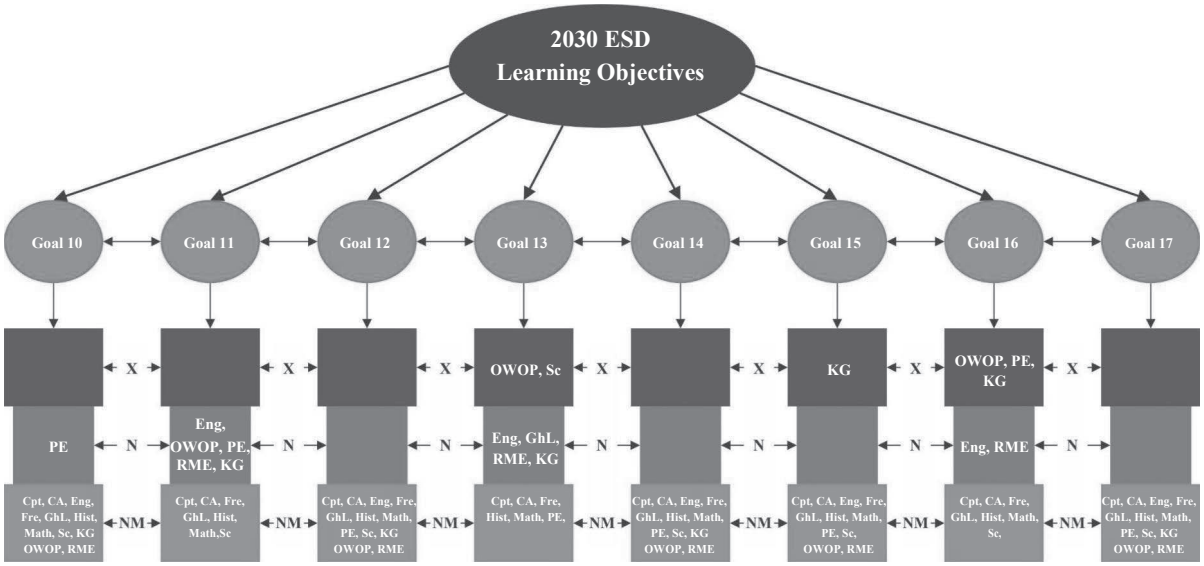


Figure 3b: Degree of salience of *ESD Learning Objectives in* Ghana's K-6 Curriculum



We also analyzed the degree of pervasiveness of the *ESD Learning Objectives* similar to the process adopted and the formula used to determine the degree of pervasiveness for *Concept* and *Competency*. The result of the degree of pervasiveness of *ESD Learning Objectives* is displayed in Table 6 below.

Table 6: Degree of Pervasiveness of ESD Learning Objectives in K-6 Curriculum

Subjects	Observed x	Observed N	Non-Mention	Observed X+N	Degree of pervasiveness
OWOP	60	119	76	179	70.2
Math	20	94	141	114	44.7
KG	72	38	145	110	43.1
ENG	10	94	151	104	40.8
RME	34	42	179	76	29.8
GhL	12	61	182	73	28.6
CA	27	29	199	56	22.0
SC	20	32	203	52	20.4
PE	27	19	209	46	18.0
HIS	8	19	228	27	10.6
CPT	1	17	237	18	7.1
FRE	1	2	252	3	1.2

As indicated in the methodology, we developed a formula and used same to assess the degree of pervasiveness reproduced as follows:

Degree of Pervasiveness: $x = \frac{\text{Ob}(100)}{\text{Nb}}$

Where O*b* = observed objectives

N*b* = number of objectives

X = Subject/Grade

As an illustration, to determine the degree of pervasiveness of the *ESD Learning Objectives* of English Language as a subject, the observed objectives 104, which is the sum of observed *X* (10) and observed *NM* (94) is expressed in a relationship with the total number of Learning Objectives N*b* (255) as follows:

Ob=104

Nb=255 thus, $x = \frac{\text{Ob}(100)}{\text{Nb}}$ therefore: $x = \frac{104 \text{ x } 100}{255}$

X= English

As can be observed from Table 6, only one subject, OWOP achieved 70% degree of pervasiveness of the ESD Learning Objectives across the K-6 Curriculum. The rest of the 11 subjects scored less than 45%. Indeed, with the exception of OWOP which had mostly explicit content of the Learning Objectives, subjects like PE, CPT, HIST and FRE had less than 20% degree of pervasiveness (see Table 6). It is also important to note that a subject like English, the major medium of instruction in schools had only 40% of pervasiveness. Indeed, subjects like RME, GhL, CA, and Sc scored less than 30%. In essence, 80% of the subjects of instruction at the K-6 level does not adequately incorporate

the ESD Learning Objectives. More importantly, core subjects like English, Mathematics and Science which are major requirements have failed to adequately cater for the ESD Learning Objectives in the K-6 curriculum. There is therefore the need to further review the entire K-6 curricula to ensure explicit inclusion of the ESD Learning Objectives in all subjects.

Conclusions

In this paper, we have analyzed the prevalence of ESD indicators as well as 2030 Education Learning Objectives in Ghana's Education Policy Documents and Basic School Curriculum. The study particularly mapped the ESD concepts and competencies against basic policies and laws relating to education and assessed the K-6 curriculum in line with the SDG learning objectives. We find evidence that while policy documents developed in the post-SDG period adequately took into consideration the demands of the ESD Concepts and Competencies, those that were developed years before the SDGs made no direct or indirect reference to the ESD indicators. We also find that, generally, there are gaps in the K-6 subjects relative to the inclusion of the ESD Learning Objectives. Having extensively reviewed policy documents and K-6 curricula of Ghana, we draw on the significant findings and conclusions to make the following recommendations:

Recommendations

First, we recommend that the Ministry of Education, and all other relevant agencies consider a review of policy documents predating the adoption of the SDGs. It has been enormously clear in our research that higher prevalence of SDG concepts and competencies were observed in more recently formulated policy documents (i.e., post 2015). Specifically, we recommend a revision of the Education Act (Act 778), the Inclusive Education Policy, ICT for Accelerated Development, and National Science Technology and Innovation Policy to make them more responsive towards the SDGs. Again, while acknowledging explicit references to the SDGs and Learning Objectives in the K-6 Curriculum, we are worried that significant sections of SDGs received very few to no mentions at all. Specifically, SDGs 7, 8, 9, 10, 12, 14 and 15 had very minimal prevalence in the K-6 Curriculum. This worrying observation needs to be corrected. We consider the current review of K 7 -12 Curriculum as an opportune time to push for NaCCA to make SDGs more pronounced. Moreover, with the promise to review the curriculum every five years, we recommend that NaCCA becomes mindful of the need to make SDGs key focus for the next curriculum review for K-6.

Also, for the SDGs that received significant mentions in the curriculum, we are curiously wondering how teachers are enacting the explicit references to SDGs in their teaching. We recommend that UNESCO, through its country agency, commission a national curriculum implementation research to ascertain the reality of learners' experiences in the implementation of SDG compliant subjects of the K-6 curriculum. We also recommend that the outcome of this research be brought to the attention of policy makers and other governmental and non-governmental organizations through policy briefs, and research dissemination fora. Such dissemination will be very critical in kick-starting discussions towards a more impactful action towards the attainment of SDGs.

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