



# THE ROLE OF EDUCATION TOWARD ECONOMIC EMPOWERMENT IN AFRICA: USING ASSESSMENT INTENTIONALLY TO EMPOWER LEARNERS ECONOMICALLY

AN  
ARTICLE  
PRESENTED TO  
DOCTORAL OFFICE  
ECWA THEOLOGICAL SEMINARY, JOS (JETS)  
PRESENTED AT BAPTIST TRAINING COLLEGE, NDOP, CAMEROON

IN  
PARTIAL  
FULFILLMENT OF THE COURSE  
REQUIREMENT FOR DOCTORAL DEGREE

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## Abstract

*Education has been accepted as the major tool for empowering learners economically and otherwise. While most discussions about the role of education in empowering learners focus on the nature of the curriculum, this paper suggests that assessment can be used intentionally for developing learner's skills which is economic empowerment in itself. Hence, this paper discusses the need for using different assessment types, diversified assessment activities, use of criteria in setting the assessment task, the ability to align assessment tasks with*

*learning objectives, and the use of taxonomies in writing objectives. Hence, the paper seeks to stress the need for intentional use of assessment tasks for empowering learners economically. It contributes to the economy of knowledge by suggesting a taxonomy which shows the alignment between learning objectives, instructional content, the assessment task, and the skill targeted. This paper will help lecturers to be intentional in developing assessment activities. The paper used the literature to review relevant discussion in the subject matter, which revealed that most discussions on assessment from Africa do not focus on using it as a direct tool for economic empowerment of learners, a gap which the paper seeks to fill.*

**Key Words:** education, economic empowerment, assessment, taxonomies.

## **Introduction**

The contemporary global village, especially Africa is experiencing several challenges ranging from economic issues caused by recent inflation, political upheaval with the failing of several governments, health issues with the explosion of Ebola in Uganda, and Cholera and other diseases in Nigeria and other parts of the continent, several national and international crises (the war between Russia and Ukraine, Anglophone crisis in Cameroon, etc) and natural crises with the recent floods in Nigeria and Chad which have led to the death of some and displacement of thousand others. These and several other challenges are contributing to increased poverty rates with many living below the minimum wage rate. For example, in Cameroon it is expected that employees of all sectors should earn at least 36,270 CFA francs per month and any employer paying below this is punishable under the law.<sup>1</sup> Given the current economic crisis with hyperinflation, this minimum wage rate in Cameroon is unrealistic in that it is difficult for someone to survive on it meaningfully in view of the cost of living. This indicates the need for workers earning such low income to devise other means of raising means of livelihood, requiring some basic life skills.

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<sup>1</sup> "WageIndicator.org", <https://wageindicator.org>salary> (Cited Oct. 22,2022).

Education has been generally accepted as a major tool for empowerment as it ought to be the agent for developing learners' skills which can help them to diversify their means of livelihood.<sup>2</sup> Therefore, it is important that what teachers do within the classroom serve towards achieving this goal. Thus, this paper argues that if educators do what they ought to be doing in the teaching-learning process well, they will develop learners' basic life skills such as critical thinking and innovation which can help them not just to pass a course but help them on how to handle daily issues of life as well. Janet Looney makes the same argument by stating that so many adults still fail to acquire even basic skills of life in their learning process which has significant effects on their individual lives and on their countries' economic, health and social well-being of families.<sup>3</sup> Similarly, in forwarding Looney's book, Barbara Ischinger, the then Director for Directorate for Education in the Organization for Economic Co-operation and Development is more particular by asserting that, "In many OECD Countries, large portions of populations do not have the skills needed to function fully and effectively in daily life."<sup>4</sup> That is, educated adults who ought to have basic skills that can enable them to function properly and contribute to the economic and social well-being of their countries lack such skills. This report about the population of OECD countries which are developed countries is a concern. What then is the situation for underdeveloped countries like Cameroon where most of their educational systems are struggling?

That is, it is obvious that education is a critical tool for the economic development of any nation. For this to happen, educators must be intentional in what they do during the teaching-learning process in order to develop learners' skills needed for daily life. That said, how can education be used as a tool toward empowering learners to equip them with the skills needed for daily life towards boosting their economic

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<sup>2</sup> Suresh Jain et al, "Fostering sustainability through education, research and practice: a case study of TERI University", *Journal of Cleaner Production*. No. 61 (2013):20-24.

<sup>3</sup> Janet Looney, *Teaching, Learning and Assessment for Adults: Improving Foundation Skills* (Center for Educational Research and Innovation: Organization for Economic Co-operation and Development, 2008), 21.

<sup>4</sup> Barbara Ischinger, "Foreword 3", *Teaching, Learning and Assessment for Adults: Improving Foundation Skills*, 3.

resources? Is it only a curriculum issue or pedagogical as well? Although the nature of the school curriculum matters much in the type of education that can empower learners, this researcher argues that pedagogy can also play a critical role towards empowering learners towards critical thinking which is key in developing learners' skills that can help them in daily life. Hence, this article explores how assessment can be used to develop critical thinking as a step towards economic empowerment of learners. This shall be done by discussing the use of assessment types, diversification of assessment activities, the careful use of assessment criteria, and suggest a taxonomy tag OIAS taxonomy (Objective, Instruction, Assessment, Skills expected taxonomy) which can help towards developing learners' life-skills. This researcher proposes that if these aspects of pedagogy are properly managed, there can contribute much towards improving students' basic life skills which are indispensable for life.

### **Using Assessment Types as a Tool for Developing Basic Skills of Life**

There are different types of assessment that if intentionally and carefully used can serve as tools for developing learner's critical thinking which is key for economic empowerment. For example, continuous and formative assessment types.<sup>5</sup> Continuous assessment takes place during the module at intervals which accrue to learners' final grades while formative assessment is used to test what students are gaining from the learning process in order to improve on their learning. While results of continuous assessment contribute to the final grades for the course, the grades of formative assessment may not necessarily be counted for students' final grades.<sup>6</sup> Continuous assessment can also be used for improving learning by providing timely feedback.<sup>7</sup> Timely feedback helps promotes students' learning, as well as supports students' learning through the several opportunities that their skills are tested. For example, if a learner fails in a test, the failure may

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<sup>5</sup> HJ Adendoff, "Overarching Assessment Policy", *Assessment policy and practice at Stellenbosch University*, 2009, pg 7-8.

<sup>6</sup> Adendoff, "Overarching Assessment Policy", 8

<sup>7</sup> Adendoff, "Overarching Assessment Policy", 9.

communicate to the learner the need to improve on his/her study. That is, continuous assessment activities can be used as a tool for developing learners' life skills. This happens when the assessment activity is intentionally developed to target an aspect of growth in the learner. For example, critical thinking skills can be developed by asking questions to students in form of feedback which help them to reflect over past errors and how they can improve on them. This solves the tendency of just designing assessment activities to test what learners have gained or understood in the learning process.

Also, when teachers conduct continuous assessment the results of students' performance may communicate a gap in the teaching methods being used, thereby causing them to think of suitable teaching methods that are geared towards helping students to learn better.<sup>8</sup> This change of teachers' use of different methods equally helps in developing learners' critical thinking as they observe their teachers using their own critical thinking in the teaching-learning process.

Formative assessment is also referred to as assessment *for* learning while summative assessment as assessment *of* learning.<sup>9</sup> That is, the goal of formative assessment is to give opportunities to students to test their level of understanding in order to improve on their learning through the use of timely feedback while summative assessment is done at the end of the module or course to test what students have learned in order to find out the level of their progress for the purpose of decision making such as promotion and certification of the students' progress.<sup>10</sup> Formative assessment occurs when students are given several tests in order to test their ability either at the beginning of the course or module (diagnostic test), or during the course proper.

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<sup>8</sup> Joshua A. Muskin, "Continuous Assessment for Improved Teaching and Learning: A Critical Review to Inform Policy and Practice", p.g 10. UNESCO International Bureau of Education, 2017. In-Progress Reflection No.13.

<sup>9</sup> Adendoff, "Overarching Assessment Policy", 2.

<sup>10</sup> Adendoff, "Overarching Assessment Policy", 2

These tests also help learners to identify aspects of the course that they are yet to master. It is within this type of assessment that the different assessment activities can be given to develop learners' life skills. That is, when several opportunities are given to learners to test the level of their understanding of what is being taught, this gives them the opportunity to develop life-skills in that process. This is because when they continually do an activity it helps them to master the skills, in this case, critical thinking needed both for the study process and in daily life. Thus, formative assessment activities can serve as a process towards the development of life skills when there is intentionality through diversified activities.

### **Diversified Assessment Activities as a Tool for Improving Learners' Basic Skills**

There are various assessment techniques that if used in the teaching-learning process can help much towards improving learners 'basic skills needed for daily life'. Some of these include open-book exam, open-notes exam, essays, oral presentations, student projects, and much more.<sup>11</sup> For each of these assessment techniques, there are advantages and disadvantages. For example, with open-book and open-note exams, the advantages are that there is less stress on the memory, retrieval skills are measured, slower writers may be helped if time is extended, students will develop the skill of note-taking which is significant for learning, and students can be encouraged to write shorter answer by which they learn the skill to summarize their notes.

However, some of the disadvantages of open-book and open-note exams are that not all students may have access to the required textbooks to be brought into the exam hall during the examination period, some students may lack the ability to summarize lecture notes in order to have access to major ideas of the lecture, there is need for more desk-space, and learners that did not make relevant notes may suffer more with open-note exam too.<sup>12</sup> The two examples discussed here are mostly used for summative assessment. This

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<sup>11</sup> Jane Chiroma Adhiambo, "Lecture Handout on Assessment, Measurement & Evaluation", [ ECWA Theological Seminary, Jos, 2018].

<sup>12</sup> Adendoff, "Overarching Assessment Policy", 17, 18.

researcher is of the opinion that these can also be used for formative assessment. For example, there can be open-note test. This will help identify students that are making irrelevant notes and give them the opportunity to check out the notes of their mates in order to prepare adequately for summative assessment.

That is, different assessment techniques can serve as a great tool in developing learners' basic skills needed for functionality in daily life. This is because if teachers are intentional, they can use different assessment activities to target an aspect in the development of learners' life skills. Table 1 below gives a summary of some of the assessment activities and some skills that can be targeted.

<b>Table 1: Assessment Activities</b>	<b>Targeted Skills</b>
<b>Hand Signals</b>	<b>Engagement/comprehension</b>
<b>Open-book/open-notes exam</b>	Integrative skills
<b>Essays</b>	Ability to formulate argument/communicative skills
<b>Oral Presentation</b>	Communicative skills/critical thinking
<b>Student Projects</b>	Teamwork/communicative skills
<b>MCQs</b>	Critical thinking/cognitive skills
<b>Case Studies</b>	Application of theories to life situations

The table above gives a sample of some assessment activities and the skills that students can learn in the process of doing them. As noted above, these skills are indispensable for learners' overall development which has a direct impact on their economic empowerment. This is because when teachers intentionally design assessment task to target the development of learners' skill, it helps create the potentials needed for students to think critically in other aspects of life, which enables them to be creative and places them in an advantaged point in regards to a counterpart who cannot. Any employer will prefer a worker who is innovative in thinking which is prerequisite for efficiency at the work place. Hence, effective use of diversified assessment techniques is a potential tool that can be used as solution to economic empowerment of learners.

## Use of Assessment Criteria as a Tool for Improving Learners' Basic Skills

Assessment criteria refer to a set of guiding principles that teachers use against any assessment activity.<sup>13</sup> That is, it is what teachers use to judge an assessment task.<sup>14</sup> Grading criteria can also serve as a tool for improving learners' basic skills.<sup>15</sup> This happens when students are well informed on such criteria and teachers ensure to use them as well. Assessment criteria depend on the nature of the activity to be assessed. Also, schools have criteria. These are sometimes referred to as marking scheme. While criteria differ from school to school and the nature of the assessment task, there are general principles that govern all types of assessment. These include validity, reliability, academic integrity, transparency, fairness, achievability, and timely feedback.<sup>16</sup>

*Validity* of an assessment task occurs when the assessment task measures what it ought to be measuring and the “deduction and the actions that are based on the results of the assessment are appropriate and accurate.”<sup>17</sup> For this to happen, the lecturer ought to align assessment to the objectives of the course, content taught, and judge based on the marking scheme that was prepared for the assessment task, not allowing prejudice to determine the grading of the assessment task. An assessment task is said to be *reliable* when the “results of the assessment task or opportunities are repeatable in different contexts.”<sup>18</sup> For example, students are asked to list the duties of a house wife. The reliability of this assessment task will be based on the responses that students from different schools give towards it. This is because the assessment task may

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<sup>13</sup> Clair Hughes, Russell Hinchy, and Clare Cappa, “Applying a Criterion and Standards Approach to Assessment t by Examination in Law”, *Case Studies of Good Practices in Assessment of Student Learning in Higher Education* (ed. by Geraldine O’Neil, Sylvia Huntley-Moore, and Phil Race, Dublin: HEA, 2007, 32

<sup>14</sup> Adendoff, “Overarching Assessment policies”, 9.

<sup>15</sup> Adendoff, “Overarching Assessment Policy”, 2

<sup>16</sup> Adendoff, “Overarching Assessment Policy”, 3.

<sup>17</sup> Adendoff, “Overarching Assessment Policy”, 3.

<sup>18</sup> Adendoff, “Overarching Assessment Policy”, 3.

not be clear enough to elicit the right responses from students. Using this example, if students give different responses that do not indicate a type of duty of a house wife, it means that the assessment task was not *reliable*. That is, the sentence structure might have been misleading.

*Academic integrity* refers to the rules and regulations or ethical implications of the school in regards to assessment issues. That is, there should be rules guiding issues of honesty (plagiarism) that students are aware of these rules.<sup>19</sup> This helps keep students in check s they know the implication of any malpractice done in the assessment task. Also, an assessment task is said to be *transparent* when students are informed about the assessment task in regards to reasons for the task, date, location, duration, methods to be used in grading, criteria for the grading, how the final grades will be calculated, and others.<sup>20</sup> Another criterion which can contribute towards the development of learners' skills is *fairness*. An assessment task is fair when the students are equally treated in the assessment task. That is, assessment task should be without prejudice and every student given the needed assistance. This creates a sense of security for students who know that they have equal opportunity, that their assessment task will be judged equally.

*Achievability* refers to the practical implications of the assessment task in regards to cost, purpose and context.<sup>21</sup> For example, in conducting a test to assess learners' skill in an area, will it be achievable to plan a test for which you or the students cannot afford the tools needed? A good example is with science subjects that may require a laboratory and other tools. Will it be right organizing a test for which the cost is unaffordable? Think about open-note exam which is needed that students bring some required textbooks. Will it be necessary to do this type of exam when you know that more than half of the class do not have the

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<sup>19</sup> Adendoff, "Overarching Assessment Policy", 3.

<sup>20</sup> Adendoff, "Overarching Assessment Policy", 3.

<sup>21</sup> Adendoff, "Overarching Assessment Policy", 3.

required textbooks? These are issues of achievability while constructing different types of assessment techniques.

Finally, *timely feedback* is another critical criterion for assessment. Feedback is the information that teachers give to students on the outcomes of an assessment task. For example, as a teacher you gave a test and graded it. The performance of the students in form of pass or fail is the outcome of the test. When you return the test results to the students, you are giving them feedback on the assessment task. An important aspect of feedback is when teachers help students to know why they failed a task and how they can improve on it, as well as giving the information within a reasonable time that students have the opportunity to improve on their errors before the next assessment task is given. That is, when teachers inform students the bases of the judgment for an aspect task, it causes them to work hard in meeting the requirement. And in the process of doing this, it helps students to develop some basic skills which they can use outside of the classroom situation.

### **Use of Taxonomies in Writing Objectives**

Simply put, educationally taxonomies can be described as classifications of types and levels of learning in the various learning domains.<sup>22</sup> That is, there are ways to describe what we want learners to gain in the learning process in the cognitive, affective and psychomotor domains. Taxonomies can also be referred to as grids, categorizations or organization of learning objectives. Hence, taxonomies describe learning objectives and quality of students' learning.<sup>23</sup> When planning a lesson, course, module, curriculum, or a program, there are certain skills that the designers hope that learners should gain in that process. Taxonomies give us guide on

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<sup>22</sup> R. Killen, "Writing Outcomes, Performance Indicators and Assessment Criteria", *Outcomes-Based Assessment* (ed. by JG Maree and WJ Fraser, Sandown: Heinemann Publishers, 2004), 69.

<sup>23</sup> Henriette Lucander et al, "The SOLO (Structure of Observed Learning Outcomes) taxonomy: a model to promote dental students' learning", *European Journal Of Dental Education* (2010): n.p DOI: 10.1111/j.1600-0579.2009.00607.x. [Cited Jan.23,2023]. Online: <https://www.researchgate.net/publication/45277161>

how to focus on the type of skills we want learners to gain through the various classifications of levels of knowledge. Taxonomies can guide in writing objectives for a lesson, a course, or a program. There are many taxonomies that educators have developed to aid this process. Some of these are Bloom's taxonomy of cognitive domains, Anderson -Krathwohl taxonomy, and the SOLO taxonomy.<sup>24</sup> For the purpose of clarifications, a brief description of these taxonomies have been presented in order to identify those areas that can be targeted while developing an assessment task which can lead towards the development of learners' life skills. Each of the taxonomies are displayed with a description of their implications, then a synthetic discussion of the various aspects of the taxonomies that when targeted in assessment activities can lead towards developing learners' skills in a separate paragraph.

### *Bloom's Taxonomy*

Bloom's taxonomy was developed by Benjamin Bloom, the American psychologist.<sup>25</sup> This is "a hierarchical arrangement of six processes whereby each level involves a deeper cognitive understanding." That is, from simplest to complex.<sup>26</sup> Table 2 below indicates the six processes that Bloom suggested we should target while writing educational objectives with specific verbs at the three learning domains (cognitive, affective, and psychomotor).

**Table 2: Sample of Bloom's Expanded Taxonomy of Educational Objectives**

Knowing	Understanding	Applying	Analyzing	Synthesizing	Evaluating
Define	Translate	Interpret	Distinguish	Compose	Judge
Repeat	Restate	Apply	Analyze	Plan	Evaluate
Record	Discuss	Use	Differentiate	Propose	Rate
List	Describe	Demonstrate	Calculate	Design	Compare
Recall	Recognize	Dramatize	Experiment	Formulate	Revise
Name	Explain	Practice	Compare	Assemble	Assess

<sup>24</sup> Killen, "Writing Outcomes, Performance Indicators and Assessment Criteria", 69-78.

<sup>25</sup> Becton Loveless, "The Definitive Guide to Bloom's Taxonomy", n.p (Cited Jan. 23, 2023). Online: <https://www.educationcorner.com>

<sup>26</sup> Loveless, "The Definitive Guide to Bloom's Taxonomy", n.p.

Relate Underline	Express Identify Locate Report Revise	Illustrate Operate Schedule Sketch	Contrast Criticize Inspect Debate Question Solve Examine Categorize	Construct Create Organize Manage prepare	Estimate
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Adapted from Center for Instruction and Professional Development.<sup>27</sup>

According to the table above, while writing lesson objectives teachers should be able to address all the six levels of the grid, If this is done it can help learners to gain some skills at the various learning domains.

### *Anderson-Kratwohl Taxonomy*

Anderson Krathwohl's taxonomy is a revision of Bloom's taxonomy. It categorized types of knowledge that learners can gain in the teaching-learning process in four levels and four corresponding fundamental questions.<sup>28</sup> The questions are:

1. What important things should learners learn?
2. How can instruction be planned and delivered so that high levels learning are achieved by all learners?
3. What assessment instruments and procedures will provide accurate information about how well learners are learning?
4. How can educators ensure that outcomes, instruction and assessment are aligned with one another?<sup>29</sup>

Table 3 below is a description of Anderson-Krathwohl' taxonomy which indicates the four levels or types of knowledge, subtype, and examples of the types of knowledge gained.

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<sup>27</sup> Hans Ott, "Bloom's Taxonomy", Center for Instruction and Professional Development no pg [Cited Nov. 24, 2022].  
Online: [http://cmsmediaspot.wiki.hempfieldsd.org/file/view/4teachbloomcirc.gif/177908523\\_/4teachbloomcirc.gif](http://cmsmediaspot.wiki.hempfieldsd.org/file/view/4teachbloomcirc.gif/177908523_/4teachbloomcirc.gif)

<sup>28</sup> Killen, "Writing Outcomes, Performance Indicators and Assessment Criteria", 71.

<sup>29</sup> Killen, "Writing Outcomes, Performance Indicators and Assessment Criteria", 71.

Table 3: Anderson-Krathwohl Taxonomy

Knowledge	Subtype	Example
<b>Factual Knowledge</b> (basic knowledge required to work in a discipline)	Knowledge of terminology	Symbols of chemicals; names of parts of a machine
	Knowledge of specific details or facts	Sequence of elements in periodic table; reliable sources of information
<b>Conceptual Knowledge</b> (knowledge of how things are related)	Knowledge of classifications and categories	Types of African music, forms of business ownership
	Knowledge of principles and generalisations	Newton's laws of motion; Pythagoras theorem
	Knowledge of theories, models and structures	Theory of evaluation; information-processing model of cognition
<b>Procedural Knowledge</b> (knowledge of how to do things)	Knowledge of subject-specific skills and algorithms	Skills used in drawing a house plan, algorithm for multiplying fraction
	Knowledge of subject-specific techniques and methods	Interviewing technique; scientific method of interviewing
	Knowledge of criteria for determining when to use particular procedures	Criteria to determine when to use the 'guess and check' procedure for problem solving, criteria to judge the feasibility of using co-operative learning as a teaching strategy
<b>Metacognitive Knowledge</b> (knowledge of cognition in general, and knowledge and awareness of one's own cognition)	Strategic knowledge	Knowledge of flowcharting as a means of showing relationships among elements of a process
	Knowledge about cognition tasks	Knowledge of the cognition demands of particular tasks; knowledge of the ways in which understanding is typically tested by educators
	Self-knowledge	Awareness of one's own knowledge level; knowledge of one's personal strengths and weaknesses in learning tasks.

Adapted from Killen "Writing Outcomes, Performance Indicators and Assessment Criteria"<sup>30</sup>

The table above gives a good picture of the classification of types or levels of knowledge by Anderson and Krathwohl which teachers ought to target while planning lessons. Unfortunately, the taxonomy answers just the first question among the four questions that Anderson and Krathwohl raised by simply stating levels of

<sup>30</sup> Killen, "Writing Outcomes, Performance Indicators and Assessment Criteria" 73.

knowledge that should be targeted while writing objectives. The four fundamental questions raised critical issues that if educators succeed to address while planning a lesson, course, or program can help much toward developing learners' life skills. The fourth question on how to align outcomes, instruction, and assessment is critical towards the goal of developing learners' life skill. That is, well aligned assessment can serve as a tool to develop learners' life skills by focusing on the higher level of knowledge through carefully planned assessment activities.

### *SOLO Taxonomy*

SOLO is an acronym which refers to "*Structure of Observed Learning Outcomes*", which is a description of five levels or stages of progressively complex understanding which are relevant to all disciplines.<sup>31</sup> It was developed by Biggs and Collins as a model for evaluating students' responses and performances in assessment for the evaluation of the quality of students' learning.<sup>32</sup> In other words, the SOLO taxonomy brings a shift in focus. While the first two taxonomies above simply describe what learners should gain at the end of a course or lesson, SOLO taxonomy gives a framework for determining the quality of what students learned and how to give quality feedback to students.<sup>33</sup> That is, SOLO taxonomy is response-based while the two other taxonomies are objective-based. The framework is organized in five levels to describe the quality of students' learning from their responses. These include "*pre-structural, uni-structural, multi-structural, relational, and extended abstract*"<sup>34</sup> (emphasis original). Students' response to a given question differ at each level of the framework. Table 4 below gives the various levels of SOLO taxonomy, a sample question and how students respond to it.

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<sup>31</sup> Michael K. Potter and Erika Kusta, *Course Design for Constructive Alignment*, Winter 2012, pg 9, Center for Teaching and Learning, University of Windsor. [Cited Jan. 23, 2023]. Online: <https://www.uwindsor.ca>

<sup>32</sup> Henriette Lucander et al, "The SOLO (Structure of Observed Learning Outcomes) taxonomy: a model to promote dental students' learning", *European Journal Of Dental Education* (2010): n.p DOI: 10.1111/j.1600-0579.2009.00607.x. [Cited Jan.23,2023]. Online: <https://www.researchgate.net/publication/45277161>

<sup>33</sup> Killen, "Writing Outcomes, Performance Indicators and Assessment Criteria", 78.

<sup>34</sup> Killen, "Writing Outcomes, Performance Indicators and Assessment Criteria", 78.

Table 4: SOLO Taxonomy: Sample Question: Why does a cheetah have spots?

Examples of possible answers	Characteristics of the sample answer	SOLO 'level' of describer
(1) 'I don't know.' (2) 'So that they are different from lions.'	(1) No attempt to answer the question (2) The response is irrelevant	Pre-structural (there is no structure to the answer)
'Because it makes them hard to see when they are stalking prey.'	The statement is true, but it focuses on just one evolutionary factor, not any of the biological factors	Uni-structural (the answer focuses on just one relevant fact)
'The spots are formed by melanin in the skin. Cheetahs developed this way so that they would be camouflaged in their normal hunting.'	Both the points mentioned are correct, but no attempt is made to relate them	Multi-structural (the answer is based on several concrete details)
'The spread of the melanin in the skins of all animals (cheetahs, zebras, etc.) is determined by the switching on and off of a chemical reaction as the embryo develops. In cheetahs, the melanin-producing reaction is turned on for just a short time. Cheetahs probably evolve this way after a chance mutation because it suited their hunting environment.'	The biological explanation is correct and it is linked to probable evolutionary factors	Relational (the answer focuses on ideas that relate all the relevant details)
'The colours of animals hides (such as cheetahs) are examples of mathematical patterns that can be described with partial differential equations. The size and shape of the embryo during the time when the melanin production is occurring determines whether an animal has spots, strips, or no pattern. The melanin starts at points on the skin and spreads to form spots. Long, thin body parts like the cheetah's tail develops stripes because the spot merge. In evolutionary terms, the spots probably started as a mutation that gave cheetahs an advantage when hunting, so natural selection determines which ones passed-on the advantageous genes. In their particular hunting environment, strips were not an advantage and that is why mutation such as the king cheetah are rare in the wild.'	The answer contains all the relevant points, explains how they are related, and mentions other abstract ideas that were not parts of the original question	Extended abstract (the answer uses abstract principles to explain the relationships and it recognizes other possibilities)

Adapted from Killen, "Writing Outcomes, Performance Indicators and Assessment Criteria", 79-80.<sup>35</sup>

<sup>35</sup> Killen, "Writing Outcomes, Performance Indicators and Assessment Criteria", 79-80.

As noted earlier, SOLO taxonomy introduces a different dimension in regards to the first two taxonomies. While the first two focus on how to develop objectives, SOLO taxonomy focuses on how to assess students' learning quality. This gives teachers a better tool for giving students' feedback as well as how to test the quality of what students learn from the study.

In summary, taxonomies give teachers a range of what they can plan in form of learning objectives which they can focus on while writing lesson, course, or program objectives. The identified objectives need to determine how they assess the achievability of the objectives gained at the cognitive, affective and psychomotor domains.<sup>36</sup> Hence, if teachers use taxonomies to decide what they want students to gain at the end of a lecture by focusing on the higher skills, this will contribute towards developing learners' basic life skills which this researcher believes that this in itself is an aspect of economic empowerment of learners.

### **Suggested Objective Instruction Assessment Skills Taxonomy (OIAS Taxonomy)**

The observation of the various taxonomies discussed above show that taxonomies are suggested guides to aid teachers and institutions as they plan their lessons or develop school's objectives on what they want learners to gain during the learning process. The Objective Instruction Assessment Skills taxonomy is going to help especially teachers on how to plan their lessons in a manner that their expectations can be measured using the clearly structured taxonomy which suggests an alignment between specific objective, instructional method, assessment type, and expected skills that the teacher wants to develop during the teaching process. Table 5 below gives a description of this taxonomy.

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<sup>36</sup> Hans Ott, "Bloom's Taxonomy", Center for Instruction and Professional Development no pg [Cited Nov. 24, 2022].  
Online: <http://cmsmediaspot.wiki.hempfieldsd.org/file/view/4teachbloomcirc.gif/177908523/4teachbloomcirc.gif>

**Table 5: Sample of O I A S Taxonomy**

Objective	Instructional Method	Assessment Type	Skills Targeted
List the parts of the human body	Lecture	Paper and pen	Comprehension
Narrate factors leading to World War I	Lecture	Presentation	Oral communication
Differentiate types of colors	Demonstration	Group work	Critical thinking/teamwork
Compose an essay	Lecture	Open-book exam	Critical thinking
Judge the application of theory to practice	Case study	Group project	Ability to apply theories/critical thinking

According to table 5, to use pedagogy intentionally to develop students' skills, there is need to align objectives, instructional method, assessment type, and the identified skill to be developed from the beginning of the lesson planning. Hence, this paper suggests that teachers should endeavor to align these four elements before entering the lecture hall.

## Conclusion

Education has been generally accepted as a major tool for empowerment. This is because during the educational process, it ought to be the agent for developing learners' life-skills which can help them to diversify their means of livelihood in a world that is plagued with diverse challenges that affect the society. Thus, this paper argues that if educators do what they ought to be doing in the teaching-learning process well, they can help towards developing learners' basic skills which will help them both for academic achievement as well as how to handle daily issues of life. While the nature of curriculum impacts the development of learners' life-skills, this article focuses on the role that careful use of pedagogy can play. It does this by exploring how teachers can use aspects of assessment and how educational objectives can be written to develop critical thinking and innovativeness which they can use beyond the course work. Particularly, this was done by discussing the use of assessment types, diversification of assessment activities,

the careful use of assessment criteria, and a suggested taxonomy on how to align objective, instruction, assessment, and the skill being targeted in a lesson. Thus, to this researcher teachers can carefully use pedagogy to develop learners' critical thinking and innovative thinking, which are fundamental life-skills that students can use beyond the classroom as an aspect of economic empowerment of the learners.

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