A Practical Research: Teaching Strategies to enhance Critical Thinking amongst Adolescent Girls Living in an Informal Settlement in Kenya

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English Abstract

In response to the lack of empirical evidence regarding methods of teaching critical thinking to adolescents, this article addresses the question of how to teach critical thinking to adolescent girls in informal settlements in Kenya. First, an evidence-based approach through a literature review of 17 articles identified teaching strategies. The aim was to discuss these strategies through a practice-based approach of 8 semi-structured interviews with life skills programmes in Kenya. The research was guided by the framework from Duron et al., (2006) and data were analysed through a typological analysis. Results show that most strategies used in western countries can also be used in another cultural context like Kenya, such as case study, group discussion, debate, peer learning, and that not all strategies that could work are currently implemented. New strategies are suggested by the participants, such as role-playing, storytelling, showcase videos or fun creative activities, which underline the importance of a sense of community. This supports the idea of a cultural embeddedness of critical thinking, which implies creating bottom-up teaching strategies, considering the specificities of a certain context.

Keywords: Life Skills Programmes, Critical Thinking, Teaching Strategies, Informal Settlements, Adolescent Girls.

Dutch Abstract

In antwoord op het gebrek aan empirisch bewijs met betrekking tot methoden om kritisch denken aan adolescenten te onderwijzen, behandelt dit artikel de vraag hoe kritisch denken aan adolescente meisjes in informele nederzettingen in Kenia kan worden onderwezen. Eerst werden via een literatuurstudie van 17 artikelen onderwijsstrategieën geïdentificeerd. Het doel was om deze strategieën te bespreken via een praktijkgerichte benadering van 8 semi-gestructureerde interviews met life skills programma's in Kenia. Het onderzoek werd geleid door het raamwerk van Duron et al., (2006) en de gegevens werden geanalyseerd door middel van een typologische analyse. Uit de resultaten blijkt dat de meeste strategieën die in westerse landen gebruikt worden ook gebruikt kunnen worden in een andere culturele context zoals Kenia, zoals case study, groepsdiscussie, debat, peer learning, en dat niet alle strategieën die zouden kunnen werken momenteel geïmplementeerd worden. De deelnemers stelden nieuwe strategieën voor, zoals rollenspelen, verhalen vertellen, showcase-video's of leuke creatieve activiteiten, die het belang van een gemeenschapsgevoel onderstrepen. Dit ondersteunt het idee van een culturele inbedding van kritisch denken, wat impliceert dat bottom-up

onderwijsstrategieën moeten worden ontwikkeld, rekening houdend met de specifieke kenmerken van een bepaalde context.

Sleutelwoorden: Programma's voor levensvaardigheden, kritisch denken, onderwijsstrategieën, informele nederzettingen, adolescente meisjes.

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Adolescent girls living in informal settlements in Kenya are facing a multitude of daily challenges affecting their health and life choices. Education can give them the tools to overcome these issues, hence the implementation of life skills programmes in some areas of the country. One particularly insightful skill girls are taught is critical thinking (CT), as it enables them to question and reflect on these challenges to adopt an empowered behaviour and make their own choices. Even tough CT is recognised as a primary goal in education, few studies explain its use and demonstrate its effectiveness in non-Western countries, including Kenya. Thus, local educators lack guidance regarding teaching strategies to develop CT among youth. This study therefore attempts to identify which strategies could be applied in this specific context.

Life skills programmes

In order to give youth the tools to reach their potential, Life Skills Education (LSE) has been taught to adolescents worldwide. Life Skills were defined by WHO (1999) as "abilities for positive and adaptive behaviour that enable individuals to deal effectively with the demands and challenges of everyday life" (Rungu, 2008). Five areas of life skills that are deemed applicable across cultures are: (a) decision making and problem solving, (b) creative thinking and critical thinking, (c) communication and interpersonal skills, (d) self-awareness and empathy, and (e) coping with emotions and stress (WHO, 1999). Thus, life skills enable young people to take action to overcome difficulties and to promote health and social relationships by adopting appropriate values and behaviours (Srikala & Kishore, 2010; Nasheeda et al., 2019). The LSE approach is based on experiential learning, such as modelling, and through participatory learning such as games, debates, and group discussions (Srikala & Kishore, 2010), hence skills are acquired through the interaction, processing and structuring of experiences (Aparna & Raakhee, 2011; Kowalczyk et al., 2012; Prajapati et al., 2017).

Critical thinking as a life skill

Participation in life skills activities promotes the development of CT (Mutiso et al., 2018). The latter is a complex concept, difficult to describe and measure (Wilgis & McConnell, 2008), yet it can be defined as "meaningful, unbiased decisions or judgments based on the use of interpretation, analysis, evaluation, inferences, and explanations of information as it relates to the evidence applied to a specific discipline" (Bers, 2005; Ernst & Monroe, 2004). Critical thinkers have the ability to inquire and question societal phenomena.

This leads them to be less biased and avoid blind acceptance of viewpoints, and it empowers them to think strategically and creatively to engage in appropriate decision-making as well as problem-solving processes (Njoka & Githui, 2018). At a broader societal level, having citizens who can think for themselves on the basis of evidence and analysis, rather than emotion or prejudice, sustains and perpetuates the democracy (Abrami et al., 2008).

Critical thinking in different contexts

Numerous studies have maintained that varied conceptions and manifestations of CT exist and are shaped by diverse cultures (e.g. Brookfield, 1991; Atkinson, 2007; McGuire). The word 'culture' is defined as "a set of attitudes, values, beliefs, assumptions and behaviours shared by a group of people throughout the generations via symbols, language, rituals and material objects" (Hofstede, 1991). The cultural anchorage of CT is based on the premise that thinking is always contextualised (Tan, 2017). Therefore, CT depends on historical practices and emerges in specific cultural contexts in response to particular situations (Maxcy, 1985). The essential core of CT was built in Western society (Wang, 2017), hence research and teaching are mainly conducted in educational institutes in western countries, whereas little is known regarding non-western contexts (Atkinson, 1997). In western countries, CT is seen as a priority that educational programmes are expected to promote in order to train students as critical thinkers (Rönnlund et al., 2019). The cultural aspect of CT suggests that its teaching may differ from one context to another.

Critical thinking for adolescent girls in Kenya

In Kenya, the learning of CT has been seen as an important educational objective for youth (Schendel et al., 2020). Adolescence is a period of increased potential but also one of greatest vulnerability (Anuradha, 2014). Aparna & Raakhee (2011) claimed that most adolescents are unable to fully utilise their potential due to inappropriate environments. In Kibera, one of the largest slums in Kenya, girls are faced with lack of access to education, school dropouts, teenage pregnancy, early marriage, unemployment, prostitution, crime, and drug and alcohol abuse. Moreover, girls in Kibera do not always have the same rights as boys to participate in extracurricular activities and socialise with their friends (Uweza Foundation, uwezakenya.org, 2020). Literature demonstrates that education is essential for improving women's living standards and empowering them in decision-making at home, in the community, at work or in politics (Mareng, 2010). Through education, CT can enable them to question and reflect on these challenges, to behave autonomously, make their own choices and thus attempt to respond positively to these issues.

Main Problem

Empirical evidence about effective teaching strategies was mostly conducted in western culture, which means rigorous evidence from non-western context are needed (Wang, 2017). Furthermore, the emphasis on CT as an important educational objective in Kenya suggests that reasoning and problem solving are highly valued within in Sub-Saharan countries (Schendel et al., 2020). Therefore, the Kenya Government has enacted educational reforms to address poor CT abilities among learners, notably the introduction of LSE in the school curriculum in 2008 (Githui et al., 2017). However, Raji (2015) observed that Kenya's educational system offers very little in primary and secondary schools in terms of equipping learners with CT abilities.
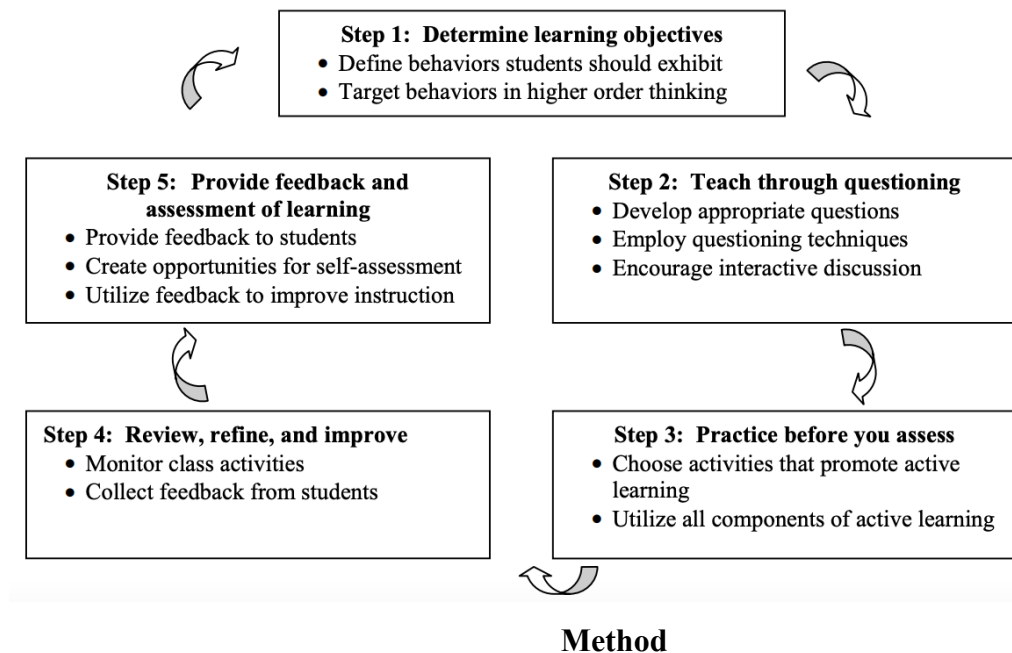
Current Study

In light of the current Kenyan situation and the limited number of studies conducted locally, this study will attempt to suggest an answer to the increased need of CT for girls in informal settlement. Particularly, Uweza Foundation, a life skills programme based in Kibera, is eager to enhance its current teaching strategy for adolescent girls, and therefore improve the future of the community. The following research question arose: *Which teaching strategy can life skills programmes use to enhance critical thinking amongst adolescent girls living in an informal settlement in Kenya?* It will be investigated whether all practices could be applied in this particular context, whether they cannot be implemented or if they need to be adapted due to cultural factors.

Framework

The framework from Duron et al., (2006) has been chosen to help answer the research question. This interdisciplinary model is based on existing theory, best practice in cognitive development, effective learning environments and outcome-based assessment. It can be implemented in any education or training setting (Duron et al., 2006). It represents 5 steps which involve specific behaviours and ways of teaching to effectively move learners toward CT. The use of the framework and the literature review are complementary, in the sense that the framework will help to organise these strategies found in the literature review and mentioned by the participants. Several strategies used can belong to one step of the model and the idea is that this model serves as a structure for different categories of teaching strategies, all related to enhance CT. The steps were also used as typologies for the interview analysis. A more in-depth explanation of each step is developed in the results sections, covering strategies related to the steps.

Figure 1

5-Step Model to Move Students toward Critical Thinking

Step 1: Determine learning objectives
- Define behaviors students should exhibit
- Target behaviors in higher order thinking

Step 5: Provide feedback and assessment of learning
- Provide feedback to students
- Create opportunities for self-assessment
- Utilize feedback to improve instruction

Step 2: Teach through questioning
- Develop appropriate questions
- Employ questioning techniques
- Encourage interactive discussion

Step 4: Review, refine, and improve
- Monitor class activities
- Collect feedback from students

Step 3: Practice before you assess
- Choose activities that promote active learning
- Utilize all components of active learning

Method

Type of Research and Procedure

This study has been conducted with a qualitative data collection. First a literature review has been conducted to look at teaching strategies to enhance CT among adolescents, in an educational context worldwide. Once the literature review was finished, questions for semi-structured interviews have been designed, according to the findings from the literature and the framework. Educators working in life skills programmes for adolescent girls living in an informal settlement in Kenya were interviewed and questioned about their strategies and the possible integration of other strategies used elsewhere. Because while analysing, some data from some participants were missing, follow up interviews were done to collect additional information. These two methods have been used to give a more complete view on the topic.

Literature Review

The topic and the research question have been prepared carefully, to be clear and specific enough. Existing studies have been searched to gather all the necessary information regarding the topic. The search words that were used are: Life Skills Education, critical thinking, critical thinking strategies, slums, informal settlements, African countries, Kenya, Western countries, youth, girlhood, teens, adolescence, adolescent girls, education, pedagogy, teaching, teaching strategy, NGO, informal settlements, youth empowerment, active learning activities, determine learning objectives, teaching strategies to review and feedback, teaching critical thinking. The databases used were Google Scholar, through which 14 articles were

found and Web of science, which led to 3 articles. The number of articles is justified by the limited empirical evidence on teaching strategies for critical thinking.

Semi-Structured Interviews

As it is often the case in qualitative research, purposive sampling was used. Participants were selected based on common characteristics and the target population, which included people working in life skills programmes for adolescent girls in informal settlements in Kenya. These were found in three ways. First, Uweza Foundation recommended five organisations that could be interviewed. Afterwards, seven were found on the Internet. Selection criteria were life skills programmes, adolescents girls, informal settlements, Kenya. Finally, to broaden the sample, the researcher asked each participant at the end of the interview whether they knew other organisations which could take part in the research. The snowball sampling helped finding three organisations. In total, fifteen organisations have been approached. They all received an email introducing the topic and the aim, asking to participate in the research, and mentioning that all the collected data will be anonymised. A consent form was attached to the email, which they chose to read and sign. Signing meant they agreed to participate in the study. Height organisations consented to participate. The other seven organisations never responded to the request, hence reasons for non-response are unknown. Interviews were conducted through video calls on WhatsApp and were recorded. This digital means of interviewing has been chosen because face-to-face interview was not possible, due to different geographical location of researcher and participants. Thus, interviews took place in different settings, as both stakeholders were in their own environment. Interviews were held in English, which is not the mother tongue of both the participants and the researcher. Afterwards, while analysing the data, the researcher realised some data were missing. Follow up interviews were conducted amongst five organisations and additional questions were asked. This list can be found in the appendix (B).

Participants

The sample consisted of height women. Six of them are the heads of the organisations and the two others are the facilitators of the life skills sessions. Some of the heads of the organisations are also facilitators of these sessions. Educators are aged between 26 and 44 years old and come from these regions: Kibera (5), Kawangware, Mukuru and Kajiado County.

Measuring Instruments

The measuring instruments of this study are the interviews. The type of interview used in this research is semi-structured interviews to allow the interviewees a degree of freedom to

explain their thoughts (Horton et al., 2004). The interviews began by introducing the topic of the research, the scientific and societal relevance, and the research question. Afterwards, the researcher asked the participants what the meaning of LSE is (e.g., What does life skills education means to you?), what the concept of CT means to them (e.g., Are you using this term or another one?), the strategies used to this extent (e.g., Which teaching strategies do you use to enhance critical thinking, how and why?) and the limitations in this approach (e.g., Are they any difficulties that occur in your approach?). The interview topics also reflected the framework, asking participants which steps they are using. A complete list of the questions can be found in the appendix (A). Interviews lasted between 30 minutes and one hour.

Data Analysis

Literature Review

A thorough reading of the literature has been undertaken to analyse the essential elements for this study so that the relevant data could be extracted from the articles. This stage required the searcher to filter the information. The exclusion criteria relate to the fact that the subject was not related to one of the steps within the framework, that other languages than English were used, and that the studies were not related to adolescents. In total, a dozen articles have been excluded. A meticulous typological analysis of the evidence has been made, in which studies have been analysed and assessed to the steps of the framework. To support this action, following questions have been asked to the searcher himself: are there gaps in the research? Are there contradictions or similarities between searches? The body of evidence addressing the research question has been carefully analysed and summarised. The purpose was to find strategies used worldwide. However, in the end, all studies found have been conducted in Western countries.

Semi-Structured Interviews

A typological analysis has been made (Hatch, 2002). This type of data analysis works well for interview data when research questions are narrow in focus, which was the case in this research, as most of the questions were related to teaching strategies. The data analysis started by dividing the data into categories based on typologies, represented by the 5 steps of the framework (determine learning objectives, teach through questioning, practice before you assess, review, refine and improve, ang give feedback and assessment). As a Microsoft Word processing programme has been used, data excerpts were copied to another file. Hypothetical patterns, relationships, and themes were discovered. Coding entries according to patterns identified as been made. Findings were then expressed as generalizations and reported with data excerpts that support them.

Results

Literature Review

　　The strategies detailed in this study suggest some possible ways for helping youth take command of what they are learning, integrate and apply what they are learning, and appropriately question what they are learning. Nevertheless, Paul and Elder (2008) claimed there is no perfect technique for fostering CT or no ideal method for engaging the intellects of students. Therefore, these approaches to teaching and learning can be modified in any number of ways. This chapter will analyse the teaching strategies according to the 5-step model framework presented in the introduction.

Step 1: Determine Learning Objective

　　Studies suggested that educators first identify the key learning objectives that define what behaviours they want the youth to acquire (Duron et al., 2006). To establish the learning objective, one can use the higher levels of Bloom's (1956) taxonomy. This means an objective could include a behaviour that is appropriate for the chosen level of the taxonomy: knowledge, comprehension, application, analysis, synthesis, evaluation. Thus, a well-written lesson plan is expected to target a specific behaviour, allow for practice of the desired behaviour, and end with the learner exhibition of the behavioural response (Duron et al., 2006). If instructors model the thinking process, students will engage in activities that encourage their CT (Snyder & Snyder, 2008).

Step 2: Teach through Questioning

　　Many researchers have highlighted the importance of asking the right questions to stimulate students' CT (Snyder & Snyder 2008; Zhao et al., 2016). Questions can be used to stimulate interaction between teacher and learner and to challenge the learner to defend his or her position (Duron et al., 2006). First, students need experience with higher level questioning once they become familiar with a concept (Duron et al., 2006). Asking questions at the higher level (e.g. How does this concept relate to this one?) can also help fostering CT, as they require students to manipulate previously learned information to create a response (Zhao et al., 2016). Second, asking students follow-up probing questions which elicit longer and more complex responses also helps students engaging in CT (Snyder & Snyder, 2008). Examples of probing questions presented by Paul and Elder (2006) are questions for clarification or about different viewpoints or perspectives. Third, it is suggested that instructors should wait for student responses (Orlich et al., 2013; Zhao et al., 2016). Most students need at least 8 to 12 seconds to process and formulate their response, especially in CT situations (Schafersman, 1991).

Step 3: Practice before You Assess

To help students develop in CT, researchers have suggested adopting active learning which focuses on student participation, cooperation, and interaction (Zhao et al., 2016). Bonwell and Eison (1991) described active learning as involving the students in activities that cause them to think about what they are doing. Examples of effective activities included case studies, group discussions, debates (Sandstrom, 2006) and peer learning (Zhao et al., 2016).

Case Study. A case study is usually a "description of an actual situation, commonly involving a decision, a challenge, an opportunity, a problem or an issue faced by a person or persons in an organization" (Leenders et al., 2001). Cases present situations and "food for thought" making students think, ask questions, and use their knowledge to answer those questions (Polil, 2011). Cases encourage students' CT, illustrate how to think professionally, and urge students to use theoretical concepts to highlight a practical problem (Dowd & Davidhizar, 1999). Case studies can be presented to individuals or groups. However, they are usually worked on in groups that can brainstorm solutions to problems. As argued by Kunselman and Johnson (2004), it will help students to make meaning of knowledge in practical settings and help them in developing CT skills.

Group Discussion. Discussion is "a teaching technique that involves an exchange of ideas, with active learning and participation by all concerned" (Orlich et al., 2013). Group discussions not only require students to think through and clarify their ideas, but they also provide students with the perspectives and insights of others through exchanging ideas (Dallimore et al., 2008). To promote CT, teachers pointed out that it is crucial to instruct students the fundamental rules and skills for group discussion, such as listening carefully, responding appropriately, building on the ideas of others, asking clarifying questions, and expressing your position supported by adequate evidence (Gunning, 2008). Besides, the choice of appropriate discussion topics also helps. Teachers are advised to choose thought-provoking topics that are pertinent to students' life experience and can hold their interests (Zhao et al., 2016).

Debate. Debate is distinguished from discussion by its definition, which identifies it as "an old teaching-learning strategy that presupposes an established position, either pro or con, on an issue, proposition, or solution to a problem" (Darby, 2007). This strategy encourages students to research a topic deeply, ask convincing questions, identify contradictions, and formulate evidence-based arguments" (Zhao et al., 2016). Halvorsen (2005) claimed that choosing controversial issues for students to debate facilitates CT development. As a typical debate presents two views ("for" or "against"), other forms of debate can be employed as

well. For instance, four-corner debate where students may choose one of the four positions ("strong agree", "agree", "disagree", or "strong disagree") on a topic to argue (Kennedy, 2007). The study of Goodwin (2003) reported gains in developing divergent perspectives on course topics.

Peer Learning. Peer learning consists of an interaction between and among the learners (King, 2002). This approach differs from the previous ones in the sense that the teacher does not have an active role. Nevertheless, the presence of the teacher is desired to provide guidance and support for students to interact with each other and share different ideas (Zhao et al., 2016). Ideas of peer learning involved introductory activities (icebreakers), working in groups (on a case study for example), making presentation, problem solving activities (Sampson & Cohen, 2001) and project-based activities that require students to apply their knowledge by constructing a real-world product (Hou et al., 2007). Furthermore, reciprocal peer questioning, which involves questioning and sharing responses in small groups, could help, as it is expected that if they regularly ask and answer questions of others and their own, students develop habits of questioning and begin to become critical thinkers (Zhao et al., 2016).

Step 4: Review, Refine and Improve

Teachers are encouraged to continually improve their lessons to ensure that their instructional techniques effectively help students develop CT skills (Duron et al., 2006). Angelo and Cross (1993) suggested one method, called the 2-minute paper, for collecting key information related to student learning. The idea was to ask students to identify the most important point learned. These papers will allow teachers to review the comments and use them in future classes to emphasize issues identified, which can lead to better teaching and learning. Another strategy given by Duron, Limbach and Waugh (2006) recommended teachers to monitor the classroom activities closely. This implies keeping a teaching diary listing information related to the students that participated, the main class activities, and assessments of their success. This diary can also contain feedbacks coming from the students, which represent important tools to be used in the improvement of a course.

Step 5: Provide Feedback and Assessment of Learning

First, the purpose of feedback is to foster the quality of student learning and performance. In fact, feedback allows the teacher and students to engage in a dialogue about what differentiates successful performances from unsuccessful ones (Duron et al., 2006). Wlodkowski and Ginsberg (1995) claimed teachers are expected to be both thoughtful and purposeful while providing feedback, which should be specific and constructive, quantitative,

frequent, positive and personal. Secondly, self-assessment is an integral part of educated thinking (Elder & Paul, 2008). Students need to evaluate how well they are internalising and applying the concepts they are learning. Therefore, they are advised to practice the self-evaluation of their work (Duron et al., 2006).

Difficulties to Teach Critical Thinking

Some barriers often impede the integration of that concept in education. First, thinking critically is what cognitive scientists call a "higher-order skill". This means that CT is "a complex activity built up out of other skills that are simpler and easier to acquire, which makes it harder to master" (Gelder, 2005). For example, to respond critically to a letter, you must already have the ability to read and understand the letter. Besides, CT is not a set of skills that can be exercised at any time, in any context. It depends on domain knowledge and practice (Willingham, 2008) and can take a long time to master (Gelder, 2005). In addition, other barriers related to the role of teachers might occur. Broadbear (2003) claimed that teachers are not often trained in CT methodology. They are aware of their content and receive training, but little of their training is dedicated to the specific issue of how to teach CT (Snyder & Snyder, 2008). Finally, both teachers and students have preconceived notions about subjects that hinder the development of CT (Snyder & Snyder, 2008), as they impede the development of analytical skills such as fairness, open-mindedness and curiosity about a topic (Kang & Howren, 2004).

Semi- Structured Interviews

The SLR has revealed several ways of enhancing CT for adolescents in Western countries. Keeping the structure of the 5-step model, insights about current teaching strategies used in life skills programmes in Kenya will be presented in this section.

Table 1

Strategies used by life skills programmes, those who are not, and those who could be

	Currently using it	Not using it	Could use it
Step 1: Determine learning objectives	All organisations	/	/
Step 2: Questioning techniques			
- Broad questions	A, C, D, E	/	/
- Time to respond	B, C, D, G	/	/

Step 3: Practice before
assessing

- Case study	A, B, D, E, G, H	C, F	C
- Discussion	All organisations	/	/
- Debate	C, F, H	B, D, E	D, E
- Peer Learning	A, C, D, E, F, G, H	B	B

Step 4: Review and improve	All organisations	/	/
Step 5: Feedback and Assessment			
- Feedback	A, B, C, D, E, G, H	/	/
- Assessment	A, B, C, E, F, G, H	/	/

Note. Each organisation interviewed was assigned a letter.

Step 1: Determine Learning objectives

The outcomes have demonstrated that most of the organisations work through a need's assessment amongst the girls whereas others do so amongst the community. In fact, most of the organisations ask the beneficiaries what they would like to receive as training and consider the views of the participants. For example, organisation G suggests the girls to write down the challenges in their lives; *"So, we give the girls time to write what they really want to learn to achieve after this session and the challenges they are facing. So, we try and tackle the most critical topic."* The organisation groups them into categories which represent the goals set at the beginning of the programme. Besides, three other organisations work through a needs' assessment of the girls but amongst the community. Educators ask the girls' parents/guardians, or other people from the community, for advice, explanation about the challenges girls are facing and topics they should learn about. In short, organisations plan the learning objectives to fill the gap of skills not provided by the society/community. *"We are just working with the community. A lot of people are malnourished. Looking on this malnutrition, it is not because they lack food but because they lack knowledge. We got that information and then we wrote the book for the programme"* (Organization I).

Step 2: Questioning Techniques

A minority of the educators spend time to prepare the questions they will ask the girls. For half of the organisations, the questions are open-ended and broad, which encourages the

girls to think outside the box. Organisation A asks questions such as *"So what would you think about this activity? What did you get out of it? These questions allow us to see how the girls improve their critical thinking attitude."* Moreover, half the organisations replied they give the girls time to respond. Others did not explicitly discuss this strategy. Organisation G specified that when a girl asks about something, they leave room for other girls to answer their peer's question and explained; *"Because when it comes from a friend, the community, they can easily relate."*

Step 3: Practice Before You Assess

Case Study. Most educators make use of the case study format by giving the girls fictional or real stories (sometimes regarding their own life). Organisation B explained; *"So, whenever I tell them a story from my story, we connect so quickly because when we understand that gender-based violence is a reality, we can prevent it. So, whenever we use case scenarios, it's very effective."* Organisation A added; *"For example, an educator uses past stories from her own life and then engage the girls to a discussion. This is helping the girls increasing their critical thinking."* As for organisation C, educators are not currently using case study, but this is something they are willing to incorporate into their programme.

Discussions. All organisations offer discussion sessions and suggested that the girls gather in small groups, as they are more comfortable confiding in each other, and it creates an atmosphere of trust. The idea organisation D wants to bring out is that to understand the world, we must share experiences; *"We use group discussions in our programme to particularly highlight and understand how our mentees understand the world around them and the solutions to daily challenges. We don't believe in this idea that you have to give any information on people."*

Debates. Even though organisations E and D are not currently using this strategy, they are willing to integrate it into their programme; *"I think it is a good element to introduce in our program". Not yet but I was thinking of incorporating that with film viewing soon!"*

Peer Learning. Most of the organisations works with this strategy of peer learning**.** One of them works as follow: educators teach to girls aged between 18 and 24. After receiving this training, these same girls will pass on the same lesson to younger girls but in a more adapted way. This way, the younger ones can better understand the message, because it comes from peers. "*This teaching strategy has shown effective results. In that we were able to create that environment where the girls don't feel like outsiders, and because it's someone from within their sample, they are able to connect with this girl"* (Organisation A). Even though organisation B is not currently using this teaching strategy, educators seem interested

to try it; *"Maybe it's something that we can start doing here, we can try in concrete in our programme."*

Step 4: Review, refine and improve

Organisations have their own way of reviewing their programme. Half of the organisations plan reflective moments during which they analyse their strategies of teaching, based on the feedback of the adolescents. Educators ask the girls how they feel about the session and therefore involve them in the decision-making; *"After every session or programme, we will ask the girls what they feel was powerful or not for them, what they want to change. So, the whole process is to involve the beneficiaries in the decision-making, asking what they feel will meet their needs or the area that they want."* Organisation A asks questions such as *"So what would you think about this activity? What did you get out of it? These questions allow us to see how the girls improve their critical thinking attitude."* Organisation E specified that they usually hire a consultant who helps reviewing the impact of the programme. In addition, organisation C mentioned that they refine and improve their programme by talking and sharing their strategies with other organisations; *"We are also open for discussion. You just learn from best practices and that's how you can always improve."*

Step 5: Give feedback and assessments

Give feedback. Organisations seem to have different timing regarding giving feedback to the girls. Half of the organisations provide feedback immediately and randomly while teaching. Organisation D specified *"We do not currently have a method of providing feedback to adolescents on our program. So, from the need of that will be asking: How do you feel about the sessions at the end of it all?"*, whereas organisation C provides feedback through counselling and a weekly engagement with the girls and their parents. Furthermore, a distinction has been mentioned by organisation D, who specified that some feedback are given at a group level and some at an individual level, without explicitly giving a reason for it.

Give assessments. Various strategies are used by the organisations in terms of assessment. Organisation F would give the girls continuous assessment test activities during the programme. *"I do this depending on the topic we do. By giving a test kind of activity or giving responsibility to see if whatever life skill lesson we did was impactful."* As for organisation F, educators use group discussions and questionnaires to measure the learning of the girls. Organisation C has developed an excel sheet documents to monitor the progress of the girls. Furthermore, organisations C, D and I have an assessment strategy they use at the beginning and at the end of the programme. The girls are given a test to measure their

knowledge and skills before joining the programme. At the end of their programme, the girls take the same test to observe what has changed, what they learnt and whether they assimilated new concepts.

News teachings strategies

Showcase videos. This strategy used by a minority of the organisations is similar to the case scenarios, except that the stories have a cinematic support. These videos show issues that girls face around the world. When beneficiaries are watching these videos, they can relate to their lives. Organisation C added *"So, you know we use showcase videos for them to actually realize who they are and what is happening for other girls".*

Role-playing. According to few organisations, the strategy of role-playing works very well. The girls can analyse a situation through a play activity and then address the issue through discussion. "*We ask the girls to take up a certain role and they analyse critically what the society requires of the girls. We realized role play works best at that."* (Organisation A)

Storytelling. Half of the educators encourage the girls to share their stories through storytelling. Organisation B finds these sessions useful to initiate reflection among the girls. They explained: *"Because when we are doing storytelling through arts, you allow the girls to draw what they feel or use that make them feel powerful and share it. Why did I choose black today? Or white? What does it make you feel what, how? We are happy at the most interactive storytelling sessions, because you get the girls to tell their feelings through colours out loud without feeling intimidated or without feeling rushed".*

Fun creatives activities. Most of the interviewed organisations plan activities which appear to aim at bonding and creating a safe pedagogical climate, such as dancing, singing, reading and theatre. The fact that they have fun brings the girls closer. Organisation F specified *"They just generally bond and within no time they have the confidence to share whatever it is that is happening in their life. So, it's mostly easier for them to share with their fellow, but with us. They just forget their problems. They just have fun and at the same time they still learn to live with other people, and they learn to tackle their challenges."* Moreover, organisation B organises sessions where the girls do cat walking or modelling. *"Modelling cat works because that is what gave me confidence and that is what I teach girls at the shelter. That is something that will raise yourself esteem yeah".* As for organisations C and G, they also use games as teaching strategies, because they make the girls feel comfortable and at ease. Organisation C created a playbook and explained "*We needed to look for an interactive way for them to think critically so the playbook actually plays a very significant role in terms of critical thinking".* At the beginning of a session, the educators start by introducing the topic

in the form of a game. These games are followed by a group discussion. Organisation G added *"So we come with games that are relevant to the current topic of discussion that will help them think and analyse. This makes it easy for them to relate during the discussion".*

Difficulties to teach critical thinking in this context

All strategies mentioned by the organisations and developed in this study have proven to be effective. When asked about difficulties regarding their teaching strategies, most answers were related to practical factors within an organisation, rather than the teaching strategy itself. It can be noted that only organisation E does not face any challenges. It can be concluded that these life skills programmes have little resources. First, most organisations cope with financial issues. Organisation F claimed that it is difficult to find donors in Africa because of corruption. As for organisation B, the problem comes from people not trusting you because of your age. This financial shortcoming results in not being able to pay staff members or their trainings. Organisation A noted; *"We use mentors who are not well compensated since we have no structured donor to facilitate them".* Even though interviews did not reveal the consequences this has on the girls, it could be assumed that the quality of the CT courses given is not achieved. In addition, three organisations cannot invest in the necessary material due to this financial concern. Because of these implications, some organisations are experiencing difficulties in responding favourably to the growing demand. Organisation F specified; *"Sometimes we are overwhelmed with the number of beneficiaries we have, we get, and we can't turn people away".* Furthermore, the lack of resource for the journey to the training centre is another practical factor to consider. Organisation I stated; *"They also are poor, so traveling also from our office to various stations is very hard because roads are in poor condition".* In addition, organisations lack society support. Organisation A mentioned that there is a lack of support from the government; *"The government has not supported implementation in public schools. This drastically affects our outcome."* Besides, organisation I stated that there is a lack of cooperation between parents and the beneficiaries. Finally, organisation D mentioned; *"We do not experience any major challenges except low responsiveness usually experienced at the beginning of the mentorships and which improve after a few sessions."* Even though the challenges are present in their daily life, these educators do not give up and will continue to tackle these challenges, as they see the enormous impact they have on the girls. Organisation G confessed; *"We realized the impact is huge. And I was challenged to continue doing because the impact. I never knew the impact was that big. We need to do this more."*

Discussion

This study has striven to answer the research question *Which teaching strategy can life skills programmes use to enhance critical thinking amongst adolescent girls living in an informal settlement in Kenya?* First, an evidence-based approach identified strategies used in Western countries to teach youth CT skills. Based on these findings, a practice-based approach confirmed which strategies have positive effects on increasing girls' CT skills in informal settlements. This study contributes to existing knowledge about teaching and learning CT by demonstrating a variety of strategies that educators in Kenya can use.

Summary of findings

Based on the framework, the literature review highlights several strategies that encourage the development of CT. Examples according to the steps involves namely the importance of targeting a specific behaviour for CT learners, having higher level questions asked to learners, practicing learning activities (e.g., case study, debate, discussion, peer learning), collecting key information related to student learning, providing students with constructive feedback, and assessing their learning. The practice-based approach confirms that most strategies used in western countries can also be used in another cultural context like Kenya. In fact, both steps 1 and 4 are implemented in all organisations, step 5 illustrates the high practice of feedback and assessment strategies for most organisations, step 2 reveals that half of the organisations use questioning techniques, and step 3 confirmed the significant practice of case study, discussion, and peer learning. Debate is a strategy that could potentially be used in these programmes as well. This step 3 shows that Kenyan organisations adopt different learning activities such as such as the use of role play, storytelling, showcase videos and fun creative activities. Although aforementioned strategies demonstrate empirical evidence that CT can be taught effectively in informal settlements, external contextual factors impede the implementation of the CT lessons, such as financial issues, lack of support or the programme location.

Reflections on findings

This study first provides two reflections based on the mindset of educators in Kenya regarding their teaching of CT, which are explained by a cultural dimension of the context. Secondly, a reflection focuses more on practical factors to be considered in the implementation of strategies, hence the importance of resources.

Results suggest that similar strategies can be used in different context. Nevertheless, the mindset with which educators in Kenya approach the teaching of CT appears to differ from their western correspondents on two aspects: the importance of the presence of one gender and the autonomy given to learners. First, the sole presence of girls in the sessions

seems to give the beneficiaries confidence, which motivates them to participate in fun and enjoyable activities. It can therefore be concluded that by creating a comfortable and healthy environment for and amongst girls, they tend to adopt a more open and positive attitude towards reflection and self-reflection, which promotes further change in their behaviour. The findings support Austrian & Ghati's (2010) study which found that girls benefit most from the programme when it is girls-only, as they are more likely to open up, express themselves, ask questions and take on leadership roles. Secondly, although the programmes establish some structure in the teaching, it can be observed that they highly value on autonomy in learning CT. Indeed, educators encourage girls to share and learn from each other, to participate in the setting of learning objectives, and to improve the programme. This observation is aligned with collaborative teaching, in which "learners are experienced social beings who can act collaboratively, organise themselves and do not need structures imposed by the facilitator to inspire learning". (Sampson & Cohen, 2001). Rather, the educator acts as a facilitator, negotiating learning and assessment with learners

By exploring these two reflections, a particularly interesting explanation can be drawn regarding the cultural dimension of CT teaching. As stated in the introduction, teaching strategies of a specific context are directly shaped by historical, social, and cultural conditions (Ong, 1996) which implies that educational authorities should avoid imposing a universal conception of CT for a particular cultural context (Tan, 2017). Looking at the additional strategies from the practice-based approach of this study, it appears that a sense of community shared between beneficiaries influence the way CT is taught. Girls living in precarious situations face numerous challenges and have no choice but to survive together. The need to create a safe and pleasant environment, the idea of actively involving them in the sessions and the idea of creating girls-only programmes embody this sense of community that they share and that will help them in their acquisition of CT skills to feel empowered. A cultural nuance can therefore be established, as Western culture is usually portrayed as individualistic, and people are characterised as having a stronger independent view of themselves (Cortina et al., 2017). This observation is supported by Tan (2017), who claimed that "instead of conceiving CT as championing individual autonomy and social independence, a culturally embedded practice of critical thinking is an act and affirmation of the communal". This is a promising reflection as it allows an understanding of how the teaching of CT can be culturally adapted from one context to another.

Lastly, some difficulties regarding the functioning of the organisations can be observed, mainly the lack of resources and support. Explanations for this result might be

supported by the findings of Rajasekar (2014) who indicated that strategy implementation requires the collaboration of all, including parties inside and outside the organisation. There is perhaps not enough emphasis on the need for cooperation and support from several stakeholders, which results on the arising of concerns. This reflection should be of great concern, as without the proper functioning of an organisation, its activities cannot be carried out properly, hereby affecting the teaching and learning of CT.

Practical implications

This study raises 3 practical implications; one regarding the possibility of implementing strategies, one regarding a method for further research in this field, and one regarding a way to find the right strategy considering the cultural factor. First, results indicate that some of the strategies mentioned in the literature review have not been used in this context, which concludes that not all methods that could work are currently used. This implies that more strategies could be implemented in informal settlements in Kenya. In addition, during the interviews, it appeared that the participants enjoyed discussing the topic and thought that this was valuable research. It can be assumed that focused group interviews might be an appropriate method for further research in this context. Lastly, findings have significant implications for understanding how culture influences the use of certain strategies. Instead of imposing a western teaching strategy in Kenya and see if it works, it might be suggested to proceed through a bottom-up strategy. Educators are advised to start with local conditions and strive to understand how key educational actors, such as teachers, students, and parents interpret and demonstrate CT within particular historical and social contexts (Tan, 2017).

Strengths and limitations

One of the strengths of this study is the combination of two methods, an evidence-based approach, and an empirical-based approach. In addition, the researcher went into the field, met some adolescent girls, and tried to understand their struggles. Unfortunately, Covid-19 interrupted the research, implying that the researcher could not meet all the participants, which makes the reliability lower due to geographical factors. Other weaknesses are related to the limited sample size, the fact that the interviews were conducted in English, which affects people's ability to explain clearly what they mean, a theoretical limitation due to the need to obtain results within the steps of the framework, and the fact that poor internet connections during the digital interviews resulted in the loss of some data.

Further research

This last consideration may explain that some parts of the interviews may lack depth, particularly regarding the position of half of the organisations on the use of the questioning teaching strategy (step 2). The literature review suggested that this practice is widely used in Western countries. It would be interesting to investigate this observation further and consider whether this lack of data is related to a lack of this practice or not. If so, a potential question for future research would be the following: *to what extent is the questioning teaching strategy to increase CT a cultural factor?*

To conclude, Snyden and Snyden (2008) claimed that educators should consider students not as receivers of information, but as users of information. Therefore, for the future of society, and to empower girls to overcome any barriers, educators are encouraged to continue to embody the wisdom of Albert Einstein when he wrote "Education is not the learning of facts, but the training of the mind to think".

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Acknowledgements

Appendix A: Questions Interviews

Structure of the interview:

1) Intro questions:

   - How are you doing? Did you have a great day?

   - I will present myself.

   - Can you present yourself?

2) The place you work:

   - Where do you work?

   - Why do you work there?

   - How many are you?

   - How is the work divided?

   - What is the main mission of your job?

3) Some concepts:

   - What does life skills education mean to you?

   - Have you ever heard about the word "critical thinking"? (+explanation definition of critical thinking): the ability to "question, examine, and reflect on ideas and values". CT can also be defined by the process of purposeful, self-regulatory judgment, which drives problem solving and decision-making (Ernst, & Monroe, 2004).

   - Are you using another term than critical thinking which means the same?

4) Your work as an educator:

   - How are you teaching to the adolescent?

   - How do you stimulate adolescent facing challenges?

   - How do to enhance critical thinking?

   - Why are you using this method?

   - Has someone inspired you to act this way?

   - Are they any limitations in your approach? (Lack of resources? Material? Technology? Staff training? Time management? Environment? Staff...)

   - Do you have any difficulties?

   - Do you assess the impact of critical thinking?

5) Other methods:

- This method is used in this context. Have you heard about this strategy? Have you ever used it? Do you think it could also be applicable in your context?

  Determine learning objectives, questioning techniques, case studies, debate, group discussions, peer learning, review and improve the lessons, give feedback and assessment.

6) Conclusion:

- Thank you for your time and your precious answers.
- Do you know other organisations I could reach?
- I hope this interview could also offer you an opportunity to reflect on your current method.

Appendix B: Follow Up Questions Interviews

- Thank you again for accepting to answer these additional questions. Thank you so much☺

About the organization:

1) What is the main mission of your organization?
2) For whom is addressed the life skills program (age-gender)?
3) Where is your organization located?

About the Critical Thinking life skills sessions:

1) Do you use the term critical thinking?
2) If no, what term do you use?
3) Are they any challenges/ limitations that you have in your approach (lack of money, lack of staff members, lack of material, adolescent being not responsive, lack of training for the educators)?

About the teaching strategies to enhance critical thinking:

There is a 5-step framework that can be implemented in any teaching or training setting to effectively move learners toward critical thinking. Some questions are asked according to the framework.

- Please specify whether this strategy works or not (and why).

1) Step 1: Determine learning objectives
   A well-written lesson plan should target a specific behavior, introduce and allow for practice of the desired behavior, and end with the learner exhibition of the behavioral response.
   → Before engaging in the sessions, do you identify the key learning objectives that define what behaviors youth should have at the end of the program/session?
   → If you do not do that, do you think that this is something you could incorporate at the beginning of your program?

2) Step 2: Teach through questioning
   Questioning is an important way to stimulate students to think critically. Thoughtful preparation on the part of the teacher is essential in providing that experience.
   → Do you take time to prepare thoughtful questions for the adolescent?
   → Are the questions specific or broad?
   → Do you give time for them to respond?

3) Step 3: Practice before you assess

To help students develop in critical thinking, researchers have suggested adopting active and cooperative learning which focuses on student participation, cooperation, and interaction. Active learning as involving the students in activities that cause them to think about what they are doing.

→ What active learning strategy do you use (activity)?

→ Case-studies (scenarios) are useful. Do you use that? If not, do you think you could incorporate it in your program?

→ Peer working are useful. Do you use that? If not, do you think you could incorporate it in your program?

→ Debates are useful. Do you use that? If not, do you think you could incorporate it in your program?

→ Group discussions are useful. Do you use that? If not, do you think you could incorporate it in your program?

4) Step 4: Review, refine and improve

Teachers should strive to continually refine their courses to ensure that their instructional techniques are in fact helping students develop critical thinking skills.

→ Do you monitor your activities?

→ To track student participation, a teaching diary can be kept that identifies the students that participated, describes the main class activities, and provides an assessment of their success. Do you use a diary or another way for reviewing your work? If not, do you think you could incorporate it your program?

→ Student feedback is also an important tool to be used in the improvement of a course. Do you take the feedback of the adolescent into account to improve your program?

5) Step 5: Provide feedback and assessment of learning

If instructors guide students' critical thinking processes, students will be more able to develop their critical thinking.

→ The purpose of feedback is to enhance the quality of student learning and performance. Do you provide feedback to the adolescent? How?

→ Students need to evaluate how well they are internalizing and applying the concepts they are learning. Do you give assessment to the adolescent? How?

Deeply thank you for your time and for helping me in my research. Your collaboration is precious