

## **Impact of School Support and Self-Efficacy and Advocacy on Acquisition of 21st Century Skills in Indonesia, Kyrgyzstan and Tanzania: Positive Pedagogical Practices as a Mediator**

**Ssekamanya Siraje Abdallah<sup>1</sup> Nursyahidah binti Khalid<sup>1</sup> and  
Puteri Azlian Megat Ramli<sup>1</sup>**

### **ABSTRACT**

This study aimed to empirically validate the work of NAMA Foundation by investigating the relationships between students' perceptions of school support, self-efficacy, advocacy, positive pedagogical practices, and the acquisition of 21st-century skills among secondary students in Indonesia, Kyrgyzstan, and Tanzania. The objective was to assess the validity and reliability of the instruments used, examine relationships between factors, and understand cultural differences in these relationships. The study employed a cross-sectional survey using Partial Least Square Structural Equation Modeling (PLS-SEM) technique, considered suitable for complex cause-effect models. Random sampling was used, with 864 high school students from 63 schools in the three countries. The study found strong reliability and validity of measures, with significant positive relationships between perceptions of school support, self-efficacy, advocacy, positive pedagogical practices, and 21st-century skills. Positive pedagogical practices mediated these relationships. Variations were observed across countries, emphasizing cultural nuances. The findings suggest the need for culturally tailored educational interventions, prioritizing positive pedagogical practices, and promoting extracurricular involvement and citizenship. Policymakers and educators should adapt programs to each context. These insights can inform interventions for Muslim youth globally.

**Keywords:** *Skill Development, Cognitive Engagement, 21st Century Skills, Personal Values, Self-Advocacy,*

<sup>1</sup> *Department of Educational Psychology & Counseling, Kulliyah of Education, IIUM*

*\*Corresponding Author: siraje@iium.edu.my*

## **INTRODUCTION**

In today's rapidly evolving educational landscape, the imperative to cultivate 21st-century skills among students has emerged as a central goal, transcending traditional academic paradigms. As education systems strive to equip students with competencies essential for success in the modern world, understanding the factors that contribute to the acquisition of these skills becomes paramount. This study delves into the intricate interplay between extracurricular involvement, community and school citizenship, and the development of 21st-century skills among secondary students in three culturally diverse countries: Indonesia, Kyrgyzstan, and Tanzania. Additionally, it explores the mediating influence of perceptions of positive pedagogical practices on this relationship, providing valuable insights into the mechanisms through which educational experiences shape skill acquisition. By focusing on these dimensions within the contexts where the NAMA Foundation operates, this research seeks to inform targeted interventions that address the unique challenges and opportunities present in each setting, ultimately contributing to more effective educational practices and outcomes.

### ***Background***

Nurturing 21st-century skills among students to prepare them for success in an increasingly complex and interconnected world has become a global imperative. According to Darling-Hammond et al. (2017), these skills encompass critical thinking, creativity, communication, collaboration, and digital literacy, among others, which are crucial for thriving in modern society. Fekede (2017) emphasizes the role of extracurricular activities and community engagement in fostering these skills, while Singh et al. (2021) highlight the importance of positive pedagogical practices in enhancing student outcomes. However, contextual factors, including cultural nuances, significantly influence educational dynamics (Nduku, 2019). The NAMA Foundation seeks to empower Muslim youth with the necessary skills to thrive and lead wherever they are. This study deals with one of the many areas of interventions targeted by the NAMA Foundation. It specifically aims to investigate the relationships between extracurricular involvement, community and school citizenship, and the acquisition of 21st-century skills among secondary students in Indonesia, Kyrgyzstan, and Tanzania, considering the mediating role of perceptions of positive pedagogical practices. By doing so, it seeks to inform tailored interventions that address the unique needs of diverse educational contexts.

### ***21st-century Skills and the Educational Landscape for Muslim Youth***

The dynamic educational landscape for Muslim youth is influenced by cultural shifts, technological advancements, and the broader global context (Shani, 2022; Sahin, 2018). Pedagogical approaches are evolving globally towards more inclusive and participatory methods, emphasizing active involvement and collaboration (Dede, 2010). The contemporary job market's demands highlight the need for a holistic approach to education and the recognition of 21st-century skills, essential for navigating the complexities of the modern workforce (Trilling et al., 2015). Student engagement in school and community environments is integral to holistic development, influencing cognitive development, social well-being, and emotional resilience (Fredricks et al., 2016).

Twenty-first century skills, often termed "future-ready" or "soft skills," are crucial for success in the contemporary world (Partnership for 21st Century Skills, 2009). These skills encompass a broad set of abilities, including critical thinking, problem-solving, creativity, effective communication, collaboration, digital literacy, adaptability, resilience, initiative, cultural awareness, self-direction, social and emotional intelligence, and leadership skills (Cefai & Cavioni, 2014; Denhardt & Denhardt, 2015).

Equipping individuals with these skills is essential for success not only in the workplace but also in various aspects of life, fostering lifelong learning and adaptability (Trilling et al., 2015). The need for equipping Muslim youth with these skills carries significant societal and economic implications (Smith, Fischer, & Vignoles, 2011).

Despite ongoing transformations, a gap exists in current educational approaches, emphasizing the need for innovative pedagogies, extracurricular activities, and enhanced student engagement (Saavedra & Opfer, 2012). The overarching purpose of this study is to empirically investigate the interplay of student-centered pedagogies, extracurricular activities, and student engagement in the school and community, shedding light on the interconnected relationships among these factors and providing evidence-based recommendations for optimizing educational experiences for Muslim youth (Banks, 2019; Podsakoff et al., 2003).

### ***Supportive School Environments and Student Development***

A supportive school culture is paramount in fostering student academic achievement and personal development. It encompasses a nurturing environment where students feel valued, respected, and encouraged to thrive academically and personally. Within such a culture, positive relationships between students, teachers, and administrators are

cultivated, creating a sense of belonging and motivation to succeed (Leithwood & Jantzi, 2008). Moreover, a supportive school culture promotes collaboration, communication, and a growth mindset, empowering students to reach their full potential (Tang, 2023; Tucker, 2014). Ultimately, the influence of a supportive school culture extends beyond academic success, positively impacting students' social-emotional well-being and lifelong learning outcomes.

In the educational setting, teachers are pivotal in transmitting knowledge and shaping students' academic progress. Wentzel (2022) notes that compared to parents and peers, teachers are particularly influential in providing instrumental help and informational support. The quality of the relationship between teachers and students thus becomes a key mechanism in enhancing students' development across various dimensions (Wentzel, 2022; Toumainen, 2023). This relationship, defined as teacher support, encompasses the extent to which students perceive their teachers as valuing personal relationships with them, aiming to provide support and instrumental help to foster learning and well-being (Wentzel, 2022; Toumainen, 2023). Extensive research has underscored the impact of teacher support on student learning and functioning across grade levels (Bani et al., 2022; Bizami et al., 2023; Herodotou, 2019). For instance, Wang and Eccles (2012) found that trusting teacher relationships protect adolescents against depression and misconduct during their teenage years. However, the influence of teacher support may vary across cultures, as observed by several researchers (Bunting & Moshuus, 2017; McChesney & Cross, 2023; Sylva, 2020). Additionally, teacher support has been found to contribute independently to student engagement, suggesting its compensatory role in domains where support from family or peers may be lacking (Thornhill-Miller, 2023; Wentzel, 2022).

According to Appleton et al.'s (2006) engagement model, direct interactions between individuals and various levels of support in their immediate environment play a crucial role in development. Socio-cognitive theory, as posited by Bandura (1995), further elucidates the reciprocal interactions among personal, behavioral, and social/environmental factors. Within this framework, self-efficacy emerges as a critical factor influencing motivation, engagement, learning, and achievement (Chalkiadaki, 2018). Teacher support plays a proximal role in shaping students' efficacy beliefs, especially during periods of interpersonal influence in middle and high school years (Chalkiadaki, 2018; Wentzel, 2022). Additionally, socio-cognitive processes mediate students' perceptions of teacher support and efficacy

beliefs, influencing motivational contexts and subsequent outcomes (Wentzel, 2022).

Perceived teacher support and students' self-efficacy have consistently been linked to various achievement-related outcomes (Mercer et al., 2011), with each contributing differentially to student engagement in class (Ozalp & Cefurovic, 2021; Grassmeyer, 2017). Recent studies further highlight the unique contributions of both constructs to learning outcomes (Bani et al., 2022; Bizami et al., 2023). Interest development, crucial for intrinsic motivation, requires support from experts such as teachers (Serin, 2018), especially in the early stages of emerging individual interest (Grassmeyer, 2017). Support for competence, autonomy, and relatedness, as proposed by self-determination theory (Deci & Ryan, 1985), promotes intrinsic motivation by fostering interest (Tang, 2023; Serin, 2018). Indeed, both observed and perceived teacher support have been found to positively influence students' interest across various age groups (Panadero et al., 2017; Fufa et al., 2022; Wentzel, 2022). Furthermore, investigating class-level student-perceived teacher support and interest allows for a nuanced understanding of classroom dynamics, highlighting the importance of shared perceptions in shaping collective interest (deCastro, 2019; Startkey, 2023; Griffin, 2017; Griffin & Care, 2019; Thornhill-Miller et al., 2023; Ke-Du, 2019).

While research on teacher support and interest development in elementary school remains limited, early interest formation heavily relies on support from teachers (Lu & Hmelo-Silver, 2014; Ke-Du, 2019). Given the stability of the classroom environment in elementary school, teachers' influence on interest development becomes particularly significant (Fufa et al., 2023; ). Thus, in our study, we focus on student-perceived teacher support and its relation to mathematics interest in elementary school, drawing on self-determination theory to define teacher support in terms of students' feelings of competence and relatedness in the classroom (Deci & Ryan, 1985).

### ***Student Self-Efficacy and acquisition of 21st Century Skills***

The role of self-efficacy in students' academic achievement and skill acquisition is a multifaceted and pivotal aspect of educational psychology that has garnered considerable attention and research interest. Self-efficacy, as conceptualized by Bandura (1995), refers to an individual's belief in their capability to succeed in specific situations or accomplish a task. This construct plays a fundamental role in shaping various dimensions of students' educational experiences, including their motivation, engagement, learning strategies, and ultimately, their

academic performance (Muhsin et al., 2020; al-Bulushi et al., 2020). As students navigate their academic journey, their perceptions of self-efficacy serve as crucial determinants of their ability to set goals, exert effort, persevere through challenges, and ultimately achieve success (Muhsin et al., 2020; al-Bulushi et al., 2020).

Extensive research has demonstrated the pervasive influence of self-efficacy on academic outcomes across different educational settings and levels. For example, studies have consistently shown a positive correlation between students' self-efficacy beliefs and their academic performance (Bunting & Moshuus, 2017). Students with higher levels of self-efficacy tend to exhibit greater persistence, resilience, and adaptability when faced with academic challenges, leading to improved learning outcomes and higher levels of achievement (Bandura, 2006). Additionally, self-efficacy beliefs are closely linked to students' engagement in learning activities, with individuals who possess high levels of self-efficacy being more likely to actively participate in classroom tasks, seek out challenging learning opportunities, and demonstrate a willingness to invest effort in their academic endeavors (Bunting & Moshuus, 2017; Cefai & Cavioni, 2014).

Furthermore, self-efficacy serves as a critical mediating factor in the relationship between students' cognitive and affective engagement and their academic success. Cognitive engagement, which involves the application of cognitive strategies and the depth of students' processing of information, has been found to mediate the effects of self-efficacy on various academic outcomes, including learning achievement and problem-solving skills (Ke-Du, 2019). Similarly, affective engagement, characterized by students' emotional reactions to learning tasks and their overall enjoyment of the learning process, has been shown to play a mediating role in the relationship between self-efficacy and academic buoyancy (Ke-Du, 2019). These findings highlight the intricate interplay between self-efficacy and different dimensions of student engagement, underscoring the importance of fostering students' confidence in their abilities to enhance their overall academic performance and well-being.

Moreover, the impact of self-efficacy on academic achievement is not limited to individual-level factors but is also influenced by broader contextual factors, including cultural values and teaching practices. Cultural values, such as individualism versus collectivism, have been shown to moderate the relationship between self-efficacy and academic outcomes, with cultural expectations shaping students' perceptions of their own capabilities and their responses to academic challenges (Zhang et al., 2021; Chalkiadaki et al., 2018). Additionally, teaching practices play a crucial role in shaping students' self-efficacy beliefs by providing

opportunities for mastery experiences, offering constructive feedback, and fostering supportive learning environments (Cefai & Cavioni, 2024; Grassmeyer, 2017). However, the extent to which teaching practices interact with cultural values to influence students' self-efficacy remains an area requiring further empirical investigation.

In conclusion, the role of self-efficacy in students' academic achievement and skill acquisition is multifaceted, encompassing individual beliefs, engagement processes, cultural contexts, and teaching practices. Understanding the complex interplay between self-efficacy and these factors is essential for developing effective educational interventions that empower students to reach their full potential and succeed academically across diverse cultural settings and educational contexts. Thus, further research aimed at elucidating the mechanisms underlying the relationship between self-efficacy and academic achievement is warranted, with implications for informing evidence-based practices in education and promoting equitable opportunities for learning and success for all students.

### ***Positive Pedagogical Practices and students' acquisition of 21st Century Skills***

Positive pedagogical practices serve as a critical mediator between students' perceptions of a supportive school environment, their self-efficacy, and the acquisition of 21st-century skills. Student-centered pedagogies, characterized by active involvement, collaboration, and personalized learning experiences, represent a significant shift in educational paradigms (Ahmed & Mikail, 2023). Within these pedagogies, student agency is paramount, empowering learners to take an active role in their learning process. Various student-centered approaches, such as Project-Based Learning (PBL), Inquiry-Based Learning, and Flipped Classroom, emphasize active participation and collaboration, contributing to the development of critical skills necessary for success in the 21st century (Hattie, 2016; Prince, 2004).

Moreover, the adaptability of student-centered pedagogies to diverse cultural values fosters inclusive learning environments, honoring cultural diversity and promoting cultural competence among students (Serin, 2018; Torres & Salifu, 2023). These pedagogical practices actively engage students in real-world scenarios, promoting the application of critical thinking, communication, and problem-solving skills (Trilling et al., 2015; Lu & Hmelo-Silver, 2014). Cooperative learning strategies within student-centered classrooms emphasize collaboration and effective communication, while open-ended

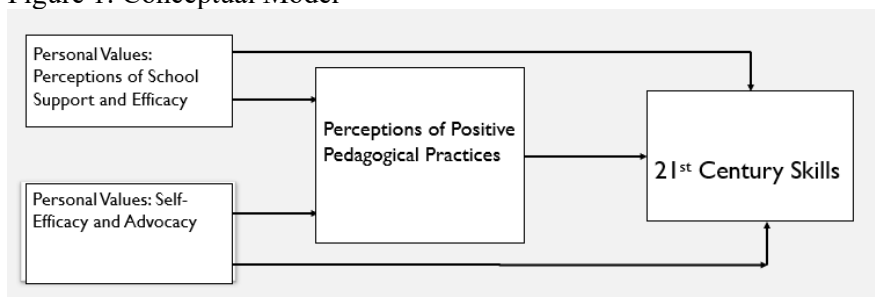
assignments and creative projects encourage innovation and creativity (Slavin, 1995; Sharmin et al., 2019).

Furthermore, practices like flipped classrooms promote self-directed learning and time management skills, essential for fostering autonomy and self-efficacy among students (Buchanan et al., 2016). Exposure to diverse perspectives and varied learning activities within student-centered approaches contributes to adaptability and flexibility, crucial skills in navigating complex and diverse environments (Trilling et al., 2015; Lu & Hmelo-Silver, 2014). Additionally, the integration of technology tools enhances digital literacy and technological proficiency, preparing students for success in a technology-driven world (Cefai & Cavioni, 2015).

In essence, positive pedagogical practices within student-centered approaches create dynamic and interactive learning environments that align with the skills needed in the 21st century (Torres & Salifu, 2023). By fostering critical thinking, collaboration, adaptability, and other essential skills, these pedagogies not only promote academic knowledge but also cultivate lifelong learners equipped for success in the modern world (Partnership for 21st Century Skills, 2009).

The foregoing relationships are reflected in the following conceptual model:

Figure 1: Conceptual Model



### ***Research Gap and Purpose of the Study***

NAMA Foundation has spent considerable efforts to improve the educational standards of selected schools in (Indonesia, Kyrgyzstan, and Tanzania). In the process, NAMA has collected extensive data on its operations. The present study is dealing with a small portion of that database to empirically validate specific aspects of that work in the light of existing educational research findings. In the intricate realm of educational research, identifying gaps becomes a compass guiding scholar towards unexplored territories. The need for empirical



investigation arises from the recognition that despite the ongoing transformations in education, there is still much to explore regarding the specific interplay of student-centered pedagogies, extracurricular activities, and student engagement, especially within the context of Muslim youth.

The main objective of this study was to investigate the relationships between students' perceptions of school support, self-efficacy, advocacy, positive pedagogical practices, and the acquisition of 21st-century skills among secondary students in Indonesia, Kyrgyzstan, and Tanzania, while exploring potential differences among these countries. The specific objectives were:

1. To assess the validity and reliability of the instruments used in the study, including factor loadings, convergent validity, and discriminant validity.

2. To examine the impact of students' perceptions of school support and efficacy and their self-efficacy and advocacy on the development of 21st-century skills.

3. To assess the mediating role of positive pedagogical practices in the relationship between students' perceptions of school support and efficacy and the acquisition of 21st-century skills.

4. To identify the differences among students from Indonesia, Kyrgyzstan, and Tanzania in terms of how their perceived school support and self-efficacy and advocacy affect their acquisition of 21st-century skills and the mediating role of positive pedagogical practices.

To compare the effects of students' perceptions of school support and efficacy, as well as self-efficacy and advocacy, on 21st-century skill acquisition across different countries (Indonesia, Kyrgyzstan, and Tanzania). The above objectives were reflected in the following hypotheses:

H1: The instruments used in the study enjoy sufficient validity and reliability (factor loadings, convergent validity, & discriminant validity).

H2: There is a significant positive impact of Personal Values of Perceptions of School Support and Efficacy on 21st century skills.

H3: There is a significant positive impact of Personal Values of Self-Efficacy and Advocacy on 21st century skills.

H4: There is a significant positive impact of Personal Values of Perceptions of School Support on perceptions of positive pedagogical practices.

H5: There is a significant positive impact of Personal Values of Self-Efficacy and Advocacy on perceptions of positive pedagogical practices.

H6: There is a significant positive impact of positive pedagogical practices on 21st century skills.

H7: Positive pedagogical practices mediate the relationship between Personal Values of Perceptions of School Support and 21st century skills.

H8: positive pedagogical practices mediate the relationship between Personal Values of Self-Efficacy and Advocacy and 21st century skills.

H9: There are significant differences in the effects of Personal Values of Perceptions of School Support and Efficacy, and Personal Values of Self-Efficacy and Advocacy on 21st century skills among different countries (Indonesia, Kyrgyzstan, & Tanzania).

By addressing these questions and hypotheses, this study endeavored to provide evidence-based insights that can contribute to the ongoing discourse on effective educational strategies, particularly within the distinct cultural and geographical contexts represented by Indonesia, Kyrgyzstan, and Tanzania.

## **RESEARCH METHODOLOGY**

To test the research hypotheses of the study, we used a cross-sectional survey implemented in the three countries (Indonesia, Kyrgyzstan and Tanzania). The study applied the Partial Least Square Structural Equation Modeling (PLS-SEM) technique using Smart PLS-4. PLS-SEM represents a well-substantiated method for estimating complex cause-effect-relationship models in social science research (Henseler, et al., 2015; González-Pérez, & Ramírez-Montoya, 2022; Sarstedt et al., 2021; Sarstedt et al., 2022; Hair et al., 2019). The study utilized convenience sampling technique. The study sample comprised of students from each of the 63 schools in those three countries where NAMA foundation intervention programs are being implemented. The total sample was 864 high school students, being 361 from Indonesia, 258 from Kyrgyztan, and 245 from Tanzania. In PLS-SEM, the guideline is that the sample size should be ten times the number of arrows pointing at a variable (Henseler, et al., 2015; González-Pérez, & Ramírez-Montoya, 2022; Sarstedt et al., 2021; Sarstedt et al., 2022; Hair et al., 2019). In the present study, there are in total 5 arrows pointing to the variables in the conceptual model. Hence, the requirement for representativeness would be 50 valid surveys. The sample size in the present study is well above the required level in each of the countries. The questionnaires were distributed in English in Tanzania (English is one the two official languages for communication in this country). In Indonesia, the questionnaire was distributed in both English and

Indonesian (Bahasa Indonesia). Similarly, in Kyrgyzstan, the questionnaire was distributed in both English and Kyrgyz. The translations into Indonesian and Kyrgyz were made by certified consultants and verified by academic experts of those languages.

The items used in this study were selected from a large dataset collected by NAMA foundation for the purpose of evaluating its programs. These self-constructed surveys focused on three main areas namely, school life, learning success, and culture and values. In the present study, only items from the learning success and culture and values domains that were deemed to represent our constructs of interest were analyzed. In the first part of the questionnaire, demographic questions were asked including country, school, age, and gender. In the second part, items for measuring students' school life (SLS), Learning Success (LSS), and culture and values (CVS) were included. Items were measured with 5-point Likert-scales where 1 meant strong disagreement and 5 meant strong agreement. Items were selected to represent Personal Values of Perceptions of School Support (CVS1), and Personal Values of Self-Efficacy and Advocacy (CVS2), Perceptions of positive pedagogical practices (LSS1) and acquisition of the 21st century skills of problem solving and collaborative communication (LSS2). Table 1 shows the items that were included in each variable.

Table 1. Scale Items

---

<b><i>Perceptions of School Support</i></b>	
CVS14	I learn from the mistakes I make.
CVS15	My school prepares me to be successful in the future.
CVS17	When I have a difficult assignment, I can ask my teacher for help.
CVS110	My school helps me to grow and learn more.
CVS23	What we learn at school helps us become better people.
<b><i>Self-Efficacy and Advocacy</i></b>	
CVS13	I can solve my problems.
CVS16	If a teacher marks my test unfairly, I talk to him/her to check my mark again.
CVS18	If I don't agree with the teacher, I can express my ideas clearly.
CVS19	If I don't agree with something at school, I can talk to my principal about it.
<b><i>Perceptions of positive pedagogical practices</i></b>	
LSS11	When the teachers explain, I understand the lessons very well.

---

---

LSS13	The teachers use material from outside the books to help us understand
LSS14	My school helps me become better at computer skills.
LSS15	I work in groups in class on activities and projects.
<b><i>Acquisition of 21st century skills</i></b>	
LSS21	I work on activities/projects that need thinking.
LSS22	When I work on activities, I need to come up with solutions to problems.
LSS23	The activities/ projects are related to my life outside the school.
LSS25	After we finish an activity /project, the teacher asks us to think about what we learned from the activity/projects.

---

## **RESULTS**

The results are presented following the tenets of PLS SEM (Henseler, et al., 2015; González-Pérez, & Ramírez-Montoya, 2022; Sarstedt et al., 2021; Sarstedt et al., 2022; Hair et al., 2019). After initial data screening and checking for multivariate normality, the first step is to analyze the validity and reliability of the indicators in the model. This is done through factor loadings, Chronbach Alpha, Composite Reliability, and discriminant validity using both the cross-loading method and the Fornell & Larcker and the HTMT method. Secondly, the structural model is tested. Thirdly, we conduct mediation analysis. Finally, we test for significant differences among the group, in this case among students from Indonesia, Kyrgyzstan and Tanzania.

### ***Reliability and validity***

The reliability of the variables was tested using Cronbach's Alpha and Composite Reliability (CR). Initially, the overall sample was assessed and items having factor loadings that were smaller than 0.600 were discarded. The results for reliability and validity along with the factor loadings for the remaining items are presented in Appendix 5 for the overall sample and for each country-specific sample. All the Alpha values and CRs for the overall sample were higher than the recommended value of 0.700. There were variations in the Alpha values and CRs for individual countries (i.e., Indonesia, Kyrgyzstan and Tanzania). The Average Variance Extracted (AVE) and CRs were all higher or close to 0.500 and 0.700, respectively, which indicates that the measures had adequate convergent validity. (See Appendices 1-4 for the model diagrams of Indonesia, Kyrgyzstan, Tanzania and the overall sample).

Discriminant validity was assessed through cross-loadings. Multicollinearity was also assessed, with the value of each indicator's Variance Inflation Factor (VIF) being less than 5.

Additionally, discriminant validity was also assessed by using cross-loadings. Appendix 6 shows the cross-factor loadings of all the items. It is observed that all the factor loadings were greater than their cross-loadings, which is a sign of discriminant validity.

Thirdly, discriminant validity was also tested using the criterion suggested by Fornell & Larcker (1981) and the Heterotrait-Monotrait Method (HTMT). The results of both tests are presented in Table 2. Both the Fornell & Larcker criterion and the Heterotrait-Monotrait Method (HTMT) results indicated that the measures used in the study enjoyed acceptable discriminant validity.

Table 2: Discriminant validity using the criterion by Fornell & Larcker (1981) and Heterotrait- Monotrait Method (HTMT)

	CVS1	CVS2	LSS1	LSS2
CVS1	<i>0.706</i>	0.539	0.564	0.575
CVS2	0.449	<i>0.701</i>	0.584	0.584
LSS1	0.418	0.353	<i>0.630</i>	0.575
LSS2	0.368	0.359	0.425	<i>0.664</i>
Indonesia				
CVS1	<i>0.642</i>	0.664	0.610	0.696
CVS2	0.419	<i>0.725</i>	0.783	0.558
LSS1	0.468	0.348	<i>0.649</i>	0.647
LSS2	0.428	0.392	0.569	<i>0.667</i>
Kyrgyzstan				
CVS1	0.776	0.532	0.744	0.634
CVS2	0.607	0.708	0.736	0.844
LSS1	0.587	0.591	0.734	0.813
LSS2	0.437	0.535	0.495	0.766
Tanzania				
CVS1	0.763	0.681	0.709	0.816
CVS2	0.574	0.726	0.810	0.735
LSS1	0.615	0.517	0.723	0.816
LSS2	0.529	0.508	0.586	0.733
Overall Sample				

CVS1 = Perceptions of School Support  
 CVS2 = Self-Efficacy & Advocacy  
 LSS1 = Perceptions of positive pedagogical practices  
 LSS2 = Acquisition of 21<sup>st</sup> century skills

**Structural model**

The next step in our analysis was to assess the hypothesized relationships. First, direct relationships were tested. Results from this analysis are presented in detail in Table 3. The results for Indonesia are presented first, followed by the results for Kyrgyzstan, then the results for Tanzania, and finally the results for the overall sample. The findings presented in Table 3 show that all of the hypotheses of the study were positively and significantly supported for the overall sample.

Table 3  
 Direct relationships (Hypotheses H2 to H7).

	Indonesia			Kyrgyzstan			Tanzania			Overall Sample		
	$\beta$	T	P	$\beta$	T	P	$\beta$	T	P	$\beta$	T	P
CVS1 -> LSS1	0.3 25	5.9 08	0.0 03	0.3 91	4.4 46	0.0 00	0.3 63	5.2 41	0.0 00	0.4 74	14.0 11	0.0 00
CVS1 -> LSS2	0.1 64	3.0 39	0.0 00	0.1 49	1.7 52	0.0 04	0.0 9	1.1 3	0.1 29	0.1 83	4.55	0.0 00
CVS2 -> LSS1	0.2 07	4.2 12	0.0 00	0.1 84	2.2 43	0.0 02	0.3 7	5.4 69	0.0 00	0.2 45	7.26 3	0.0 03
CVS2 -> LSS2	0.1 82	3.3 25	0.0 00	0.1 77	2.9 49	0.0 00	0.3 37	3.4 41	0.0 00	0.2 16	5.38 6	0.0 00
LSS1 -> LSS2	0.2 92	4.1 32	0.0 00	0.4 38	6.6 02	0.0 00	0.2 43	3.6 71	0.0 00	0.3 62	9.66 7	0.0 00

CVS1 = Perceptions of School Support  
 CVS2 = Self-Efficacy & Advocacy  
 LSS1 = Perceptions of positive pedagogical practices  
 LSS2 = Acquisition of 21<sup>st</sup> century skills

Second, the findings also reveal that the results for each country specific sample were also positive and significant. The only exception here are the results for Tanzania which indicated that except for CVS1 -> LSS2 ( $\beta = 0.09$ ,  $t = 1.13$ ,  $p = 0.129$ ), all the other hypotheses were also positive and significant. Therefore, hypotheses H2 to H7 were accepted.

**Mediation analysis**

Results for the analysis of the mediated relationships are presented next. The results for Indonesia are presented first, followed by the results for Kyrgyzstan, then the results for Tanzania, and finally the results for the overall sample (Table 4).

Table 4: Mediation analysis (Hypothesis H8).

	Indonesia			Kyrgyzstan			Tanzania			Overall Sample		
	$\beta$	T	P	$\beta$	T	P	$\beta$	T	P	$\beta$	T	P
Total Effect			0.000									
CVS1 -> LSS2	0.259	5.24		0.32	3.685	0.001	0.178	2.246	0.012	0.354	9.654	0.000
Total Effect			0.000									
CVS2-> LSS2	0.243	4.908		0.257	3.469	0.000	0.427	4.689	0.000	0.305	7.533	0.000
Direct Effect			0.000			0.004			0.129			0.000
CVS1 -> LSS2	0.164	3.039		0.149	1.752		0.009	1.103		0.183	4.505	
Direct Effect			0.000			0.000			0.000			0.000
CVS2-> LSS2	0.182	3.325		0.177	2.949		0.337	3.441		0.216	5.386	
Indirect Effects												
CVS2 -> LSS1 -> LSS2	0.095	3.568	0.002	0.171	3.545	0.000	0.088	3.108	0.001	0.171	8.398	0.000
CVS1 -> LSS1 -> LSS2	0.061	2.833	0.002	0.081	2.149	0.016	0.088	3.108	0.001	0.089	5.773	0.000

CVS1 = Perceptions of School Support

CVS2 = Self-Efficacy & Advocacy

LSS1 = Perceptions of positive pedagogical practices

LSS2 = Acquisition of 21<sup>st</sup> century skills

Results of mediation analysis revealed that the mediating role of Perceptions of positive pedagogical practices (LSS1) between Perceptions of School Support (CVS1) and Acquisition of 21<sup>st</sup> century skills (LSS2) was significant for the overall sample as well as for Indonesia, Kyrgyzstan and Tanzania. Likewise, the mediating role of Perceptions of positive pedagogical practices (LSS1) between Self-Efficacy & Advocacy (CVS2) and Acquisition of 21<sup>st</sup> century skills

(LSS2) was significant for the overall sample as well as for Indonesia, Tanzania and Kyrgyzstan. Hence hypothesis H8 was supported.

**Multi-group analysis**

As a last step in the analysis, we evaluated the significant differences that existed in the effects of Perceptions of School Support (CVS1), Self-Efficacy & Advocacy (CVS2) and perceptions of positive pedagogical practices (LSS1) on the Acquisition of 21st century skills among the different countries explored in the paper (i.e., Indonesia, Kyrgyzstan and Tanzania). The hypothesis H9 was tested using multi-group analysis (Table 5).

**Table 5: Multi-group comparison (Hypothesis H8).**

	Path diff. (Indonesia-Kyrgyzstan)	p-value (Indonesia-Kyrgyzstan)	Path diff. (Indonesia-Tanzania)	p-value (Indonesia-Tanzania)	Path diff. (Kyrgyzstan-Tanzania)	p-value (Kyrgyzstan-Tanzania)
CVS1 -> LSS1	-0.066	0.252	-0.038	0.336	0.029	0.387
CVS1 -> LSS2	0.014	0.443	0.074	0.222	0.059	0.303
CVS2 -> LSS1	0.023	0.394	-0.163	0.028	-0.186	0.044
CVS2 -> LSS2	0.005	0.475	-0.154	0.088	-0.160	0.085
LSS1 -> LSS2	-0.146	0.067	0.049	0.304	0.195	0.022

CVS1 = Perceptions of School Support

CVS2 = Self-Efficacy & Advocacy

LSS1 = Perceptions of positive pedagogical practices

LSS2 = Acquisition of 21<sup>st</sup> century skills

The findings revealed that the differences were significant when comparing the Self-Efficacy & Advocacy (CVS2) and Perceptions of



positive pedagogical practices between Indonesia and Tanzania (path diff= -0.163,  $p=0.028$ ) and Kyrgyzstan and Tanzania (path diff= -0.186,  $p=0.044$ ), meaning that the coefficient for Tanzania was higher than those of Indonesia and Kyrgyzstan. The differences were also significant when comparing the effect of Perceptions of positive pedagogical practices and Acquisition of 21<sup>st</sup> century skills between Kyrgyzstan and Tanzania (path diff= 0.195,  $p=0.022$ ), meaning that the coefficient for Kyrgyzstan that of Tanzania. All the other differences in the hypothesized relationships were found insignificant. Therefore, the hypothesis H8 to was not supported by our findings. This fact shows that the outcomes of effects of Perceptions of School Support , Self-Efficacy & Advocacy and Perceptions of positive pedagogical practices on the Acquisition of 21st century skills are quite similar in Indonesia, Kyrgyzstan and Tanzania.

## **SUMMARY AND DISCUSSION**

The present study attempted to empirically validate the work of NAMA Foundation by investigating the relationships between students' perceptions of school support, self-efficacy, advocacy, positive pedagogical practices, and the acquisition of 21st-century skills among secondary students in Indonesia, Kyrgyzstan, and Tanzania are summarized below.

The study assessed the validity and reliability of the instruments used, including factor loadings, convergent validity, and discriminant validity. The results indicated that the measures had adequate reliability and validity, with Cronbach's Alpha values, Composite Reliability (CR), and Average Variance Extracted (AVE) meeting acceptable thresholds. Reliability and validity were assessed using Cronbach's Alpha, Composite Reliability (CR), factor loadings, and discriminant validity tests. The high values of Cronbach's Alpha and CR for the overall sample indicated strong internal consistency. The factor loadings for the remaining items were above 0.600, meeting the recommended threshold. Discriminant validity was confirmed through cross-loadings, with all factor loadings greater than their cross-loadings, and through the Fornell & Larcker criterion and Heterotrait-Monotrait Method, demonstrating acceptable discriminant validity (Fornell & Larcker, 1981; Henseler et al., 2015).

The analysis revealed positive and significant relationships between students' perceptions of school support, self-efficacy, advocacy, positive pedagogical practices, and the acquisition of 21st-century skills

for the overall sample and each country-specific sample. The structural model analysis tested direct relationships, revealing significant support for hypotheses H2 to H7 across the overall sample. However, variations were observed in the country-specific samples, emphasizing the importance of examining cultural nuances in educational contexts (Jokisaari, 2013).

Positive pedagogical practices were found to mediate the relationship between perceptions of school support and efficacy and the acquisition of 21st-century skills. Additionally, positive pedagogical practices mediated the relationship between self-efficacy and advocacy and the acquisition of 21st-century skills, supporting hypotheses related to mediation (Ahmed & Mikail, 2023; Johnson et al., 2014, Klemencic, 2017). Moreover, Significant differences were observed in the effects of self-efficacy, advocacy, and positive pedagogical practices on the acquisition of 21st-century skills among the different countries studied. Notably, differences were found when comparing Indonesia and Tanzania, Kyrgyzstan and Tanzania, and Kyrgyzstan and Tanzania in terms of the effects of these variables on 21st-century skill acquisition (González-Pérez & Ramírez-Montoya, 2022).

Overall, the findings suggest that perceptions of school support, self-efficacy, advocacy, and positive pedagogical practices play significant roles in shaping students' acquisition of 21st-century skills across diverse cultural and geographical contexts. While some similarities were observed among the countries studied, there were also notable differences, highlighting the importance of considering contextual factors in educational interventions and policies.

### ***Discussion***

For Research Question number 1, the study assessed the validity and reliability of the instruments used, including factor loadings, convergent validity, and discriminant validity. The results indicated that the measures had adequate reliability and validity, with Cronbach's Alpha values, Composite Reliability (CR), and Average Variance Extracted (AVE) meeting acceptable thresholds. This is consistent with the recommended standards and thresholds established in PLS literature (eg., Henseler, et al., 2015; González-Pérez, & Ramírez-Montoya, 2022; Sarstedt et al., 2021; Sarstedt et al., 2022; Hair et al., 2019). Reliability and validity were assessed using Cronbach's Alpha, Composite Reliability (CR), factor loadings, and discriminant validity tests. The high values of Cronbach's Alpha and CR for the overall sample indicated strong internal consistency. The factor loadings for the remaining items were above 0.600, meeting the recommended threshold (Sarstedt et al.,

2022; Hair et al., 2019). Discriminant validity was confirmed through cross-loadings, with all factor loadings greater than their cross-loadings, and through the Fornell & Larcker criterion and HTMT (Heterotrait-Monotrait) Method, demonstrating acceptable discriminant validity (Fornell & Larcker, 1981; Henseler et al., 2015).

For Research Question number 2, the analysis revealed positive and significant relationships between students' perceptions of school support, self-efficacy, advocacy, positive pedagogical practices, and the acquisition of 21st-century skills for the overall sample and each country-specific sample. The structural model analysis tested direct relationships, revealing significant support for hypotheses H2 to H7 across the overall sample. However, variations were observed in the country-specific samples, emphasizing the importance of examining cultural nuances in educational contexts (Jokisaari, 2013).

There was a significant positive impact of perceptions of school support and efficacy on the acquisition of 21st-century skills across all three countries. This is consistent with previous studies emphasizing that educators should prioritize creating supportive school values, cultures and environments while fostering students' self-efficacy beliefs (deCastro, 2019; Muhsin et al., 2020; McChesney & Cross, 2023; Starkey, 2023; Wentzel, 2022). The explanation for this is that school culture and values affect teacher practices which in turn influence student personal and academic outcomes (McChesney & Cross, 2023). All of these factors have been found to positively influence students' acquisition of essential skills. Initiatives such as mentorship programs, counseling services, and extracurricular activities can enhance school support and boost students' confidence and belief in their abilities (McChesney & Cross, 2023).

Moreover, it was found that the values of self-efficacy and advocacy had a significant positive impact on the acquisition of 21st-century skills in Indonesia, Kyrgyzstan, and Tanzania. Previous studies had underscored that educational interventions should focus on enhancing students' self-efficacy beliefs and empowering them to advocate for their educational needs and goals (Pandero et al., 2017; Sylva, 2020). Strategies such as goal-setting, self-reflection, and leadership development programs can help students develop the confidence and advocacy skills necessary for success in the 21st century (Jansen et al. 2019).

Additionally, there was a significant positive impact of perceptions of school support on positive pedagogical practices across the three countries. This resonates with studies that called on schools and educational institutions to invest in creating supportive environments that

enable teachers to implement effective pedagogical practices (Tucker, 2014; Tang, 2023; Toumainen, 2023). Professional development programs should focus on equipping educators with the skills and resources necessary to adopt student-centered, innovative teaching methods that promote active learning and critical thinking.

There is a reciprocal relationship between students' experiences with the school's value system and teacher practices. Self-efficacy and advocacy were found to positively influence positive pedagogical practices in all three countries. This confirms the importance of educators' beliefs and advocacy efforts in shaping classroom practices. Providing teachers with opportunities for professional growth, collaboration, and autonomy has been found to empower them to implement student-centered pedagogies and create engaging learning environments (Panadero et al., 2017; Jansen et al., 2019; Sylva, 2020).

Emphasizing that teacher classroom practices play a central role in students' acquisition of attitudes and skills, it was found that Positive pedagogical practices significantly contributed to the acquisition of 21st-century skills across Indonesia, Kyrgyzstan, and Tanzania. Many previous studies had argued that educators should prioritize the implementation of student-centered pedagogies and innovative teaching methods that promote active learning, collaboration, and critical thinking (Ahmed & Mikail, 2023; Griffin, 2017; Griffin & Care, 2014; Ke-Du, 2019; Lu & Hmelo-Silver, 2014). However, this process involves many challenges (Fufa et al., 2023; Serrin, 2018). Investing in teacher training, curriculum development, and educational resources aligned with 21st-century learning objectives can enhance students' skill development.

For Research Question number 3, positive pedagogical practices were found to mediate the relationship between perceptions of school support and efficacy and the acquisition of 21st-century skills. Additionally, positive pedagogical practices mediated the relationship between self-efficacy and advocacy and the acquisition of 21st-century skills, supporting hypotheses related to mediation (Ahmed & Mikail, 2023; Johnson et al., 2014, Klemencic, 2017). Previous studies had shown the importance of creating supportive school environments and empowering educators to implement effective teaching practices (Bani et al., 2022; Bizami et al., 2023; Herodotou, 2019). This vindicates the work of educational practitioners, NGOs, and policymakers who focus on fostering collaboration between stakeholders, promoting teacher autonomy, and providing resources and support for the implementation of evidence-based pedagogical strategies.

For Research Question number 4, cross-country comparisons revealed that the differences were significant when comparing the self-efficacy and advocacy and perceptions of positive pedagogical practices between Indonesia and Tanzania and between Kyrgyzstan and Tanzania. In both cases the coefficient for Tanzania was higher than those of Indonesia and Kyrgyzstan. The differences were also significant when comparing the effect of perceptions of positive pedagogical practices and acquisition of 21st century skills between Kyrgyzstan and Tanzania. In this case the coefficient for Kyrgyzstan was higher than that of Tanzania. All the other differences in the hypothesized relationships were found insignificant. Therefore, hypothesis H8 was supported by our findings. This fact shows that some of the outcomes of effects of perceptions of school support, self-efficacy and advocacy and perceptions of positive pedagogical practices on the acquisition of 21st century skills were significantly different among Indonesia, Kyrgyzstan and Tanzania. This confirms the complexity of the global educational sphere whereby there is a divide between the developed north and the developing south on the one hand, and differences among developing countries on the other.

Researchers from the different countries have indicated that these countries are at different levels of educational development (Indonesia: Rahayu et al., 2011; Huda & Lubis, 2019; and Karmin et al., 2021. For Kyrgyzstan and neighboring central Asian countries: Abizada et al., 2020; Jotsov et al., 2023; and Karimbayev et al., 2023). For Tanzania and neighboring countries: Luyton & Bazo, 2019; Nduku, 2019; Rugambwa & Mwaikokesya, 2022). In their extensive reviews of educational achievement literature, Garcia (2020) and Zhang et al. (2021) have pointed out that there are significant differences between the developed north and the developing south as well as among the developing countries. This demonstrates the needs for NGOs like NAMA Foundation to recognize the unique cultural, social, and economic contexts of each country and tailor educational interventions and policies accordingly. Collaborative research efforts and knowledge exchange initiatives can facilitate cross-cultural learning and inform the development of contextually relevant educational strategies.

Overall, the findings suggest that perceptions of school support, self-efficacy, advocacy, and positive pedagogical practices play significant roles in shaping students' acquisition of 21st-century skills across diverse cultural and geographical contexts. While some similarities were observed among the countries studied, there were also notable differences, highlighting the importance of considering contextual factors in educational interventions and policies.

## **CONCLUSION AND IMPLICATIONS**

The findings of this study carry several implications for educational policy, practice, and future research, shedding light on the nuanced relationships between extracurricular involvement, community and school citizenship, perceptions of positive pedagogical practices, and the acquisition of 21st-century skills in diverse cultural contexts. The main implication is regarding educational policy and practice. The first consideration is cultural tailoring of educational interventions. The variations observed in the direct relationships and mediation processes across Indonesia, Kyrgyzstan, and Tanzania suggest the importance of culturally tailoring educational interventions. Policymakers and educators should consider adapting programs to the unique cultural characteristics of each context to maximize their effectiveness (OECD, 2019; Banks, 2019). Secondly, and this is exactly what NAMA Foundation has embarked upon, is enhancing positive pedagogical practices. Given the mediating role of perceptions of positive pedagogical practices, educators should prioritize strategies that enhance positive teaching and learning environments. Professional development programs should focus on equipping teachers with skills that foster positive perceptions among students (Leithwood & Jantzi, 2008). Another practice that is highlighted by the findings is promoting extracurricular involvement and citizenship. The positive relationships observed between extracurricular involvement, community and school citizenship, and the acquisition of 21st-century skills highlight the importance of fostering these aspects in educational settings. Schools should encourage participation in extracurricular activities and promote a sense of citizenship to contribute to holistic skill development (Mahoney, Cairns, & Farmer, 2003).

### ***Suggestions for Future Research***

While NAMA Foundation has collected data from 2021 and 2022, the way the data is structured makes it difficult to know whether the respondents in both years are the same, and it is impossible to trace individual respondents across different time periods. Future research should employ longitudinal study designs to track the evolution of relationships over time, ensuring insights into sustainability (Bryman, 2016). Expanding cross-cultural comparisons beyond the current countries would enhance generalizability, uncovering more cultural nuances. Further exploration of how positive pedagogical practices mediate skill development would offer practical insights for educators and policymakers (Hattie, 2016).

### ***Limitations***

While this study contributes valuable insights to the understanding of the relationships between extracurricular involvement, community and school citizenship, positive pedagogical practices, and the acquisition of 21st-century skills, several limitations should be acknowledged. Firstly, the cross-sectional design employed in this study limits the ability to establish causality. Future research could employ longitudinal designs to examine the temporal dynamics of these relationships and provide a more robust understanding of the causal pathways. Secondly, the reliance on self-report measures for variables like extracurricular involvement, community and school citizenship, and perceptions of positive pedagogical practices introduces the potential for response bias. Future studies could incorporate objective measures or multi-source assessments to enhance the reliability of data. Moreover, the study focused on three specific countries (Indonesia, Kyrgyzstan, and Tanzania), limiting the generalizability of findings to other cultural contexts. Future research should include a more diverse set of countries to increase the external validity of the study.

In conclusion, this study sheds light on the intricate relationships between students' perceptions of school support, self-efficacy, advocacy, positive pedagogical practices, and the acquisition of 21st-century skills across Indonesia, Kyrgyzstan, and Tanzania. The findings underscore the universal significance of supportive educational environments and effective pedagogical strategies in fostering student success and skill development, transcending cultural and geographical boundaries. Despite differences in context, the consistent positive relationships and the mediating role of positive pedagogical practices highlight the importance of these factors in shaping student outcomes. Moreover, the similarity in the magnitudes of effects and the comparable findings in multi-group analysis suggest common underlying mechanisms driving these relationships across diverse settings. These insights provide valuable evidence for informing targeted interventions aimed at enhancing educational practices and outcomes for Muslim youth, contributing to more effective educational strategies globally.

### **Funding**

This research was sponsored by the NAMA Foundation for which we are grateful.

## REFERENCES

- Abizada, A., Gurbanova, U., Iskandarova, A., & Nadirzada, N. (2020). The effect of extracurricular activities on academic performance in secondary school: The case of Azerbaijan. *International Review of Education*, 66(4), 487-507.
- Ahmed, I. A., & Mikail, M. A. (2023). Interactive Instructor for a Synergistic Student-Centered and Personalized Teaching: A Biosocial Approach. *Education and Urban Society*, 55(8), 996-1018.
- Al-Balushi, S. M., Ambusaidi, A. K., Al-Balushi, K. A., Al-Hajri, F. H., & Al-Sinani, M. S. (2020). Student-centred and teacher-centred science classrooms as visualized by science teachers and their supervisors. *Teaching and Teacher Education*, 89, 103014.
- Appleton, J. J., Christenson, S. L., Kim, D., & Reschly, A. L. (2006). Measuring cognitive and psychological engagement: Validation of the Student Engagement Instrument. *Journal of School Psychology*, 44(5), 427-445.
- Beni, S., Fletcher, T., Déirdre Ní Chróinín (2022). 'It's not a linear thing; there are a lot of intersecting circles': Factors influencing teachers' implementation of Meaningful Physical Education, *Teaching and Teacher Education*, Volume 117, 2022, 103806
- Bizami, N. A., Tasir, Z., & Kew, S. N. (2023). Innovative pedagogical principles and technological tools capabilities for immersive blended learning: a systematic literature review. *Education and Information Technologies*, 28(2), 1373-1425.
- Bunting, M., & Moshuus, G. (2017). Young peoples' own stories about dropping out in Norway: An indirect qualitative approach. *Acta Didactica Norge*, 11(2), 3-sider.
- Cefai, C., & Cavioni, V. (2014). Education That Matters in the Twenty-First Century. Social and Emotional Education in Primary School: *Integrating Theory and Research into Practice*, 1-7.
- Chalkiadaki, A. (2018). A systematic literature review of 21st century skills and competencies in primary education. *International Journal of Instruction*, 11(3), 1-16.
- Darling-Hammond, L., Hyler, M. E., Gardner, M. (2017). *Effective Teacher Professional Development*. Palo Alto, CA: Learning Policy Institute.
- de Castro, R. M., & Pereira, D. I. F. (2019). Education and attachment: Guidelines to prevent school failure. *Multimodal Technologies and Interaction*, 3(1), 10.
- De la Sablonnière, R., Taylor, D. M., & Sadykova, N. (2009). Challenges of applying a student-centered approach to learning in the



- context of education in Kyrgyzstan. *International Journal of Educational Development*, 29(6), 628-634.
- Dede, C. (2010). Comparing frameworks for 21st century skills. *21st century skills: Rethinking how students learn*, 20(2010), 51-76.
- Deng, L., Wu, Y., Chen, L., & Peng, Z. (2024). 'Pursuing competencies' or 'pursuing scores'? High school teachers' perceptions and practices of competency-based education reform in China. *Teaching and Teacher Education*, 141, 104510.
- Denhardt, J. V., & Denhardt, R. B. (2015). The new public service revisited. *Public Administration Review*, 75(5), 664-672.
- Fekede, T. U. L. İ. (2017). Teachers professional development in schools: Reflection on the move to create a culture of continuous improvement. *Journal of Teacher Education and Educators*, 6(3), 275-296.
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39-50.
- Fredricks, J. A., Filsecker, M., & Lawson, M. A. (2016). Student engagement, context, and adjustment: Addressing definitional, measurement, and methodological issues. *Learning and instruction*, 43, 1-4.
- Fufa, F. S., Tulu, A. H., & Ensene, K. A. (2023). Examining the challenges of using student-centred teaching strategies in secondary schools: A qualitative approach. *Journal of Pedagogical Sociology and Psychology*, 5(3), 61-72.
- Garcia, R., Dante Tan, R., Florendo, J., & Santos, N. (2020). 21st century soft skills in student-centered learning among first-year college students: a comparative study. *International Journal of Recent Advances in Multidisciplinary Research*, 7(10), 6338-6341.
- González-Pérez, L. I., & Ramírez-Montoya, M. S. (2022). Components of Education 4.0 in 21st century skills frameworks: systematic review. *Sustainability*, 14(3), 1493.
- Grassmeyer, J. K. (2017). *21st century skills: Examining the influence of epistemic development, mindset, and extracurricular participation on curiosity, adaptability, and initiative* (Doctoral dissertation, Drake University).
- Griffin, P. (2017). Assessing and teaching 21st century skills: Collaborative problem solving as a case study. *Innovative assessment of collaboration*, 113-134.
- Griffin, P., & Care, E. (Eds.). (2014). *Assessment and teaching of 21st century skills: Methods and approach*. Springer.

- Hair, J. F., Sarstedt, M., & Ringle, C. M. (2019). Rethinking some of the rethinking of partial least squares. *European journal of marketing*, 53(4), 566-584.
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115–135.
- Herodotou, C., Sharples, M., Gaved, M., Kukulska-Hulme, A., Rienties, B., Scanlon, E., & Whitelock, D. (2019). Innovative pedagogies of the future: An evidence-based selection. In *Frontiers in Education* (Vol. 4, p. 113). Frontiers Media SA.
- Huda, M., & Lubis, A. H. (2019). Exploring the implementation of student-centered learning in EFL classrooms: Perspectives from Islamic secondary-school teachers in Indonesia. *IJELTAL (Indonesian Journal of English Language Teaching and Applied Linguistics)*, 3(2), 187-201.
- Jansen, R. S., Van Leeuwen, A., Janssen, J., Jak, S., & Kester, L. (2019). Self-regulated learning partially mediates the effect of self-regulated learning interventions on achievement in higher education: A meta-analysis. *Educational Research Review*, 28, 100292.
- Johnson, D. W., Johnson, R. T., & Smith, K. A. (2014). Cooperative learning returns to college: What evidence is there that it works? *Change: The Magazine of Higher Learning*, 30(4), 26-35.
- Jotsov, V., Madyarova, G., Umirzakova, Z., Akramova, A., Tkach, G., Kerimbayev, N., & Beisov, N. (2023). The Use of Mobile Technologies in Education with an Emphasis on a Student-Centered Approach. In *2023 International Conference Automatics and Informatics (ICAI)* (pp. 140-145). IEEE.
- Karmina, S., Dyson, B., Watson, P. W. S. J., & Philpot, R. (2021). Teacher implementation of cooperative learning in Indonesia: A multiple case study. *Education Sciences*, 11(05), 218.
- Ke-Du, L. (2019). Effective teaching in the context of 21st century learning in a Malaysian secondary school. *Asian Journal of University Education*, 14(2), 1-12.
- Keiler, L. S. (2018). Teachers' roles and identities in student-centered classrooms. *International journal of STEM*
- Kerimbayev, N., Umirzakova, Z., & Shadiev, R. (2023). A student-centered approach using modern technologies in distance learning: a systematic review of the literature. *Smart Learn. Environ* 10, 61-77. <https://doi.org/10.1186/s40561-023-00280-8>

- Kivunja, C. (2014). Innovative pedagogies in higher education to become effective teachers of 21st century skills: Unpacking the learning and innovations skills domain of the new learning paradigm. *International Journal of Higher Education, 3*(4), 37-48.
- Knowledge, A. (2019). Improving Teaching and Learning. Retrieved from:  
<https://www.globalpartnership.org/sites/default/files/2019-07-kix-tl-final-english.pdf>
- Koehorst, M. M., van Deursen, A. J., van Dijk, J. A., & de Haan, J. (2021). A systematic literature review of organizational factors influencing 21st-century skills. *Sage Open, 11*(4), 21582440211067251.
- Lu, J., Bridges, S., & Hmelo-Silver, C. E. (2014). Problem-based learning. *The Cambridge handbook of the learning sciences, 298-318*.
- Luyten, H., & Bazo, M. (2019). Transformational leadership, professional learning communities, teacher learning and learner centred teaching practices; Evidence on their interrelations in Mozambican primary education. *Studies in educational evaluation, 60*, 14-31.
- Madelo, N. Q. (2015). The Influence of spirituality of Teachers and Moral Values of Students on the 21st century skills development of students. *International Journal of Novel Research in Education and Learning, 2*(4), 22-61.
- Maker, C. J., Pease, R., & Zimmerman, R. (2023). Identifying and Cultivating Innovators and Increasing Diversity in Science, Technology, Engineering, and Mathematics (STEM): A Needed Paradigm Shift. *Roeper Review, 1-17*.
- McCarthy, J. (2015). Student-centered learning: It starts with the teacher. *Edutopia. George Lucas Educational Foundation, September, 9*.
- McChesney, K., & Cross, J. (2023). How school culture affects teachers' classroom implementation of learning from professional development. *Learning Environments Research, 26*, 785–801<sup>1</sup>
- Muhsin, M. R., Indartono, S., & Astuti, S. I. (2020). The role of school culture in teacher professionalism improvement. In *International Conference on Progressive Education (ICOPE 2019)* (pp. 158-162). Atlantis Press.
- Naimanova, D., Lebedeva, L., Akpayeva, A., Astambayeva, Z., Ryabova, E., & Yessenova, K. (2023). Investigation of primary school teachers' student-centered teaching and technology integration competencies. *International Journal of Education in Mathematics, Science and Technology, 11*(6), 1386-1404.

- Nduku, E. (2019). The concept of positive school climate and its application to teaching and learning in secondary schools in Kenya. *International Journal of Educational Theory and Practice*, 2(3), 48-66.
- Newman, K., & Gentile, E. (2020). How teachers teach: Comparing classroom pedagogical practices in the Asia and Pacific Region.
- Nissim, Y., Weissblueth, E., Scott-Webber, L., & Amar, S. (2016). The effect of a stimulating learning environment on pre-service teachers' motivation and 21st century skills. *Journal of Education and Learning*, 5(3), 29-39.
- Odell, M. R., Kennedy, T. J., & Stocks, E. (2019). The impact of PBL as a STEM school reform model. *Interdisciplinary Journal of Problem-Based Learning*, 13(2).
- Ozalp, M., & Ćufurović, M. (2021). Religion, belonging, and active citizenship: A systematic review of literature on Muslim youth in Australia. *Religions*, 12(4), 237.
- Panadero, E., Jonsson, A., & Botella, J. (2017). Effects of self-assessment on self-regulated learning and self-efficacy: Four meta-analyses. *Educational Research Review*, 22, 74-98.
- Partnership for 21st Century Skills. (2009). *P21 framework definitions*. Retrieved from [http://www.p21.org/storage/documents/P21\\_Framework\\_Definitions.pdf](http://www.p21.org/storage/documents/P21_Framework_Definitions.pdf)
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879–903.
- Rahayu, S., Chandrasegaran, A. L., Treagust, D. F., Kita, M., & Ibnu, S. (2011). Understanding acid–base concepts: Evaluating the efficacy of a senior high school student-centred instructional program in Indonesia. *International Journal of Science and Mathematics Education*, 9, 1439-1458.
- Ravitz, J., Hixson, N., English, M., & Mergendoller, J. (2012). Using project based learning to teach 21st century skills: Findings from a statewide initiative. In *American educational research association conference, Vancouver, Canada* (Vol. 16).
- Rugambwa, A., & Mwaikokesya, M. (2022). Effectiveness of School-based Professional Development in Addressing Teachers' Learning Needs and Improving Learner-centred Pedagogical Practices. *Rwandan Journal of Education*, 6(2), 148-164.

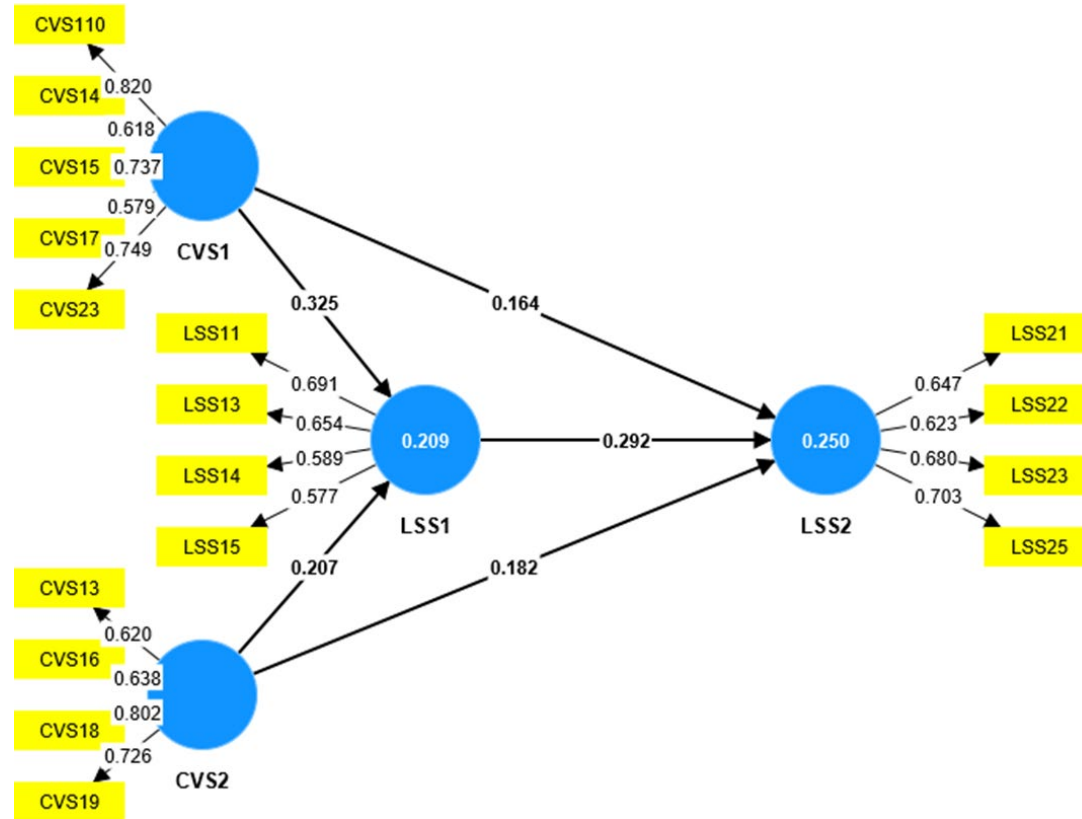
- Saavedra, A. R., & Opfer, V. D. (2012). Teaching and learning 21st century skills: Lessons from the learning sciences. *A Global Cities Education Network Report*. New York, Asia Society.
- Sahin, A. (2018). Critical issues in Islamic education studies: Rethinking Islamic and Western liberal secular values of education. *Religions*, 9(11), 335.
- Sarstedt, M., Hair, J. F., Pick, M., Liengaard, B. D., Radomir, L., & Ringle, C. M. (2022). Progress in partial least squares structural equation modeling use in marketing research in the last decade. *Psychology & Marketing*, 39(5), 1035-1064.
- Sarstedt, M., Ringle, C. M., & Hair, J. F. (2021). Partial least squares structural equation modeling. In *Handbook of market research* (pp. 587-632). Cham: Springer International Publishing.
- Scott, C. L. (2015). Why Must Learning Content and Methods Change in the 21st Century. *Education research and foresight*.
- Serin, H. (2018). A comparison of teacher-centered and student-centered approaches in educational settings. *International Journal of Social Sciences & Educational Studies*, 5(1), 164-167.
- Shani, S. (2022). Muslim Youth, Religion, and Educational Aspirations: The Case of West African Immigrants in New York City. In *Children and Youths' Migration in a Global Landscape* (pp. 95-114). Emerald Publishing Limited.
- Sharmin, S., Zingaro, D., Zhang, L., & Brett, C. (2019). Impact of open-ended assignments on student self-efficacy in CS1. In *Proceedings of the ACM Conference on Global Computing Education* (pp. 215-221).
- Singh, A.K., Rind, I.A., Sabur, Z. (2021). Continuous Professional Development of School Teachers. In: Sarangapani, P.M., Pappu, R. (eds) *Handbook of Education Systems in South Asia*. Global Education Systems. Springer, Singapore. [https://doi.org/10.1007/978-981-15-0032-9\\_31](https://doi.org/10.1007/978-981-15-0032-9_31)
- Slavin, R. E. (1995). *Cooperative learning: Theory, research, and practice* (2nd ed.). Boston: Allyn & Bacon.
- Smith, P. B., Fischer, R., & Vignoles, V. L. (2011). Cultural differences in psychological and socio-economic adaptation of immigrants. *International Journal of Intercultural Relations*, 35(4), 487-498.
- Starkey, J. (2023). Effective strategies for building and sustaining a positive school culture and climate. *Academy of Educational Leadership Journal*, 27(S2), 1-3.

- Sulaiman, J., & Ismail, S. N. (2020). Teacher competence and 21st century skills in transformation schools 2025 (TS25). *Universal Journal of Educational Research*, 8(8), 3536-3544.
- Sylva, K., Sammons, P., Melhuish, E. C., Siraj, I., & Taggart, B. (2020). Developing 21st century skills in early childhood: The contribution of process quality to self-regulation and pro-social behaviour. *Zeitschrift für Erziehungswissenschaft*, 23(3).
- Tang, K. H. D. (2023). Student-centered Approach in Teaching and Learning: What Does It Really Mean. *Acta Pedagogica Asiana*, 2(2), 72-83.
- Thompson, K. L., & Gullone, E. (2003). Promotion of empathy and prosocial behaviour in children through humane education. *Australian Psychologist*, 38(3), 175-182.
- Thornhill-Miller, B., Camarda, A., Mercier, M., Burkhardt, J. M., Morisseau, T., Bourgeois-Bougrine, S., ... & Lubart, T. (2023). Creativity, Critical Thinking, Communication, and Collaboration: Assessment, Certification, and Promotion of 21st Century Skills for the Future of Work and Education. *Journal of Intelligence*, 11(3), 54.
- Torres, K. M., & Salifu, S. (2023). *Culturally Responsive Pedagogy Considerations for Online Courses*. In *Handbook of Research on Innovative Frameworks and Inclusive Models for Online Learning* (pp. 52-67). IGI Global.
- Trilling, B., Fadel, C., & Bialik, M. (2015). *Four-dimensional education: The competencies learners need to succeed*. New York: Center for Curriculum Redesign.
- Tromp, C., & Sternberg, R. J. (2022). Dynamic creativity: A person× task× situation interaction framework. *The Journal of Creative Behavior*, 56(4), 553-565.
- Tucker, S. Y. (2014). Transforming pedagogies: Integrating 21st century skills and Web 2.0 technology. *Turkish Online Journal of Distance Education*, 15(1), 166-173.
- Tuomainen, S. (2023). Student-Centred Teaching to Support Learning. In *Supporting Students through High-Quality Teaching: Inspiring Practices for University Teachers* (pp. 59-76). Cham: Springer International Publishing.
- UNESCO. (2015). Transversal competencies in education policy & practice. Retrieved from <http://unesdoc.unesco.org/images/0023/002319/231907E.pdf>
- University of Central Asia (2021). *Education for the 21st Century in Kyrgyzstan: Current Realities and Roadmap for Systemic Reform* (ucentralasia.org). Retrieved from:

<https://ucentralasia.org/publications/2021/april/education-for-the-21st-century-in-kyrgyzstan-current-realities-and-roadmap-for-systemic-reform>

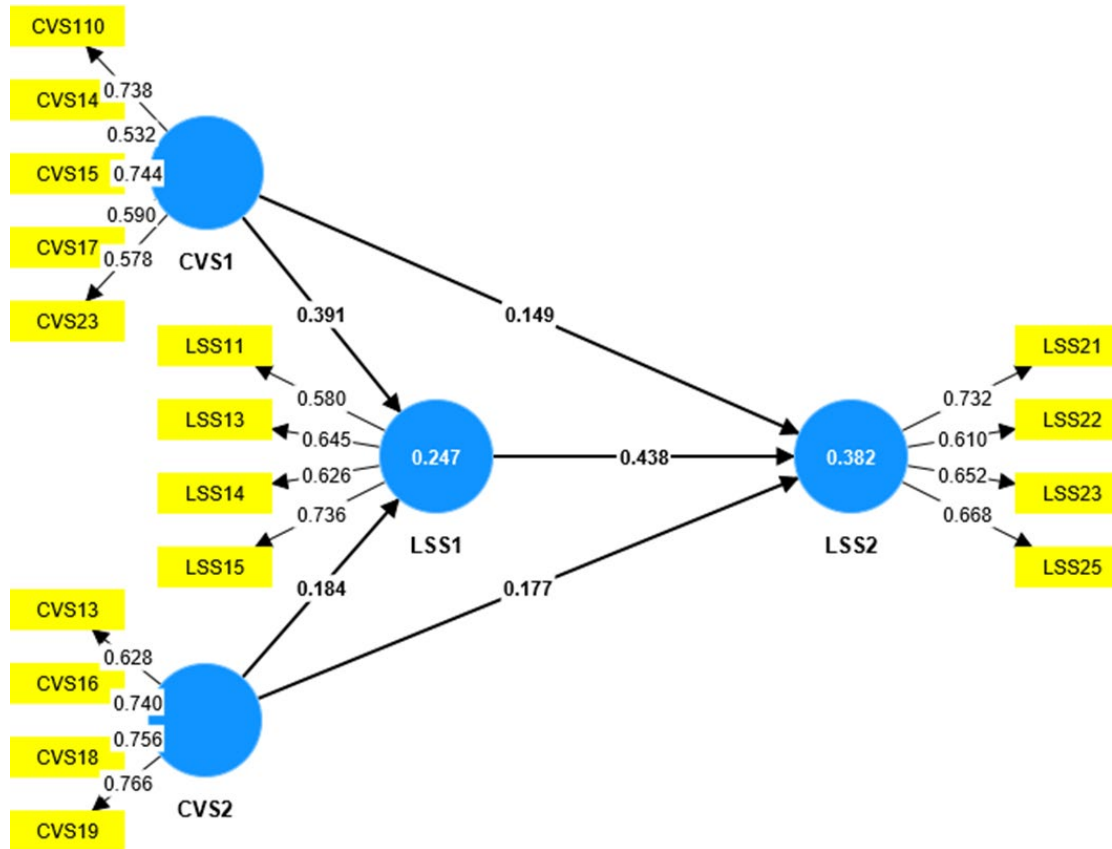
- Wentzel, K. R. (2022). Does anybody care? Conceptualization and measurement within the contexts of teacher-student and peer relationships. *Educational Psychology Review*, 34(4), 1919-1954.
- Zhang, L., Basham, J. D., Carter Jr, R. A., & Zhang, J. (2021). Exploring Factors associated with the implementation of student-centered instructional practices in US classrooms, *Teaching and Teacher Education*, 99, 103273.

APPENDIX 1 INDONESIA MODEL

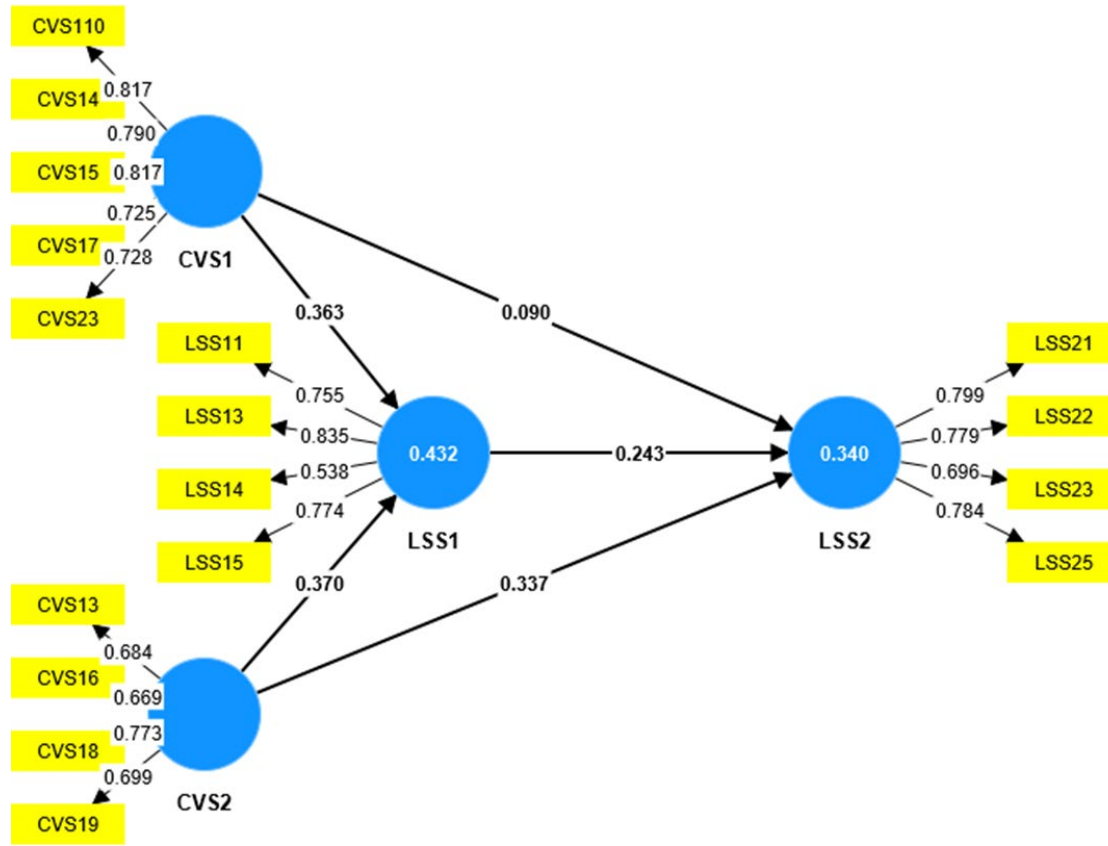




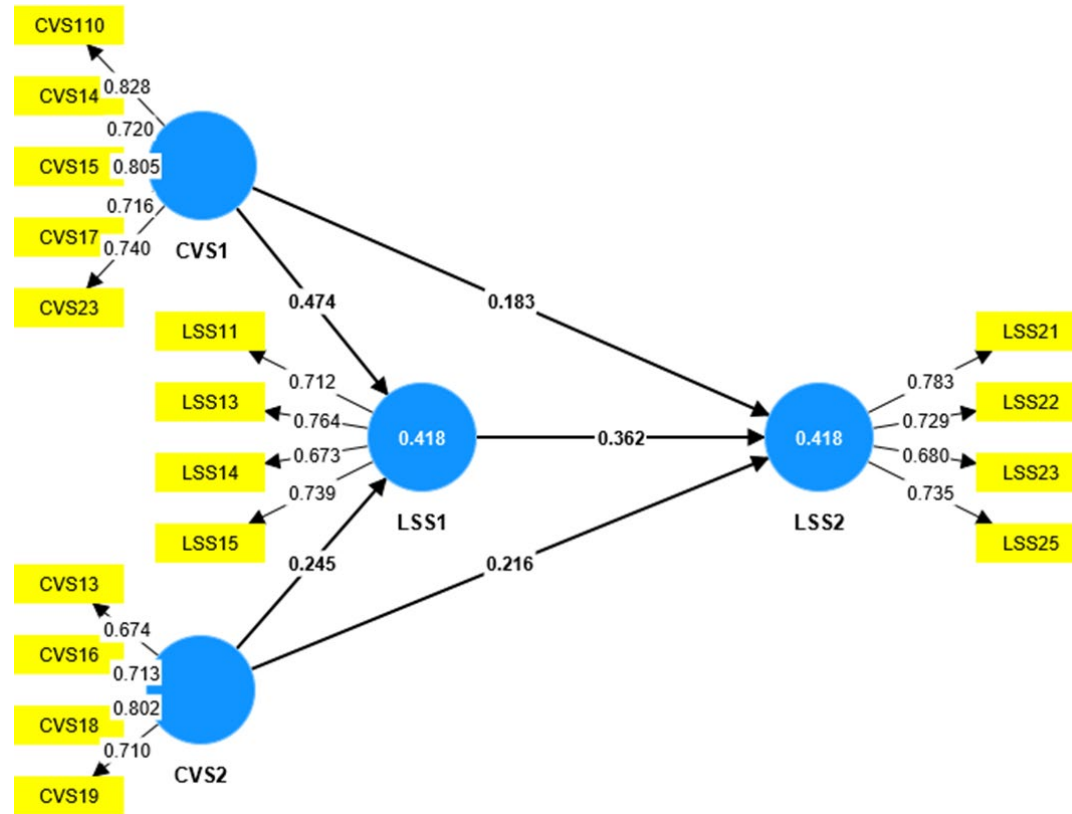
APPENDIX 2 KYRGYZSTAN MODEL



APPENDIX 3 TANZANIA MODEL



APPENDIX 4 OVERALL SAMPLE MODEL



**Appendix 5. Item loadings, reliability and validity**

	Indonesia					Kyrgyztan					Tanzania					Overall Sample				
	$\lambda$	Alph a	CR	AV E	VIF	$\lambda$	Alph a	CR	AV E	VIF	$\lambda$	Alph a	CR	AVE	VIF	$\lambda$	Alph a	CR	AVE	VIF
CVS1 3	0.62	0.65 4	0.79 2	0.49 1	1.12 6	0.62 8	0.69 7	0.81 5	0.52 5	1.30 3	0.68 4	0.66 6	0.8	0.50 1	1.84 4	0.67 4	0.70 1	0.81 6	0.52 7	1.95 1
CVS1 6	0.63 8				1.15 0	0.74 0				1.21 4	0.66 9				1.24 8	0.71 3				1.22 4
CVS1 8	0.80 2				1.65 0	0.75 6				1.15 2	0.77 3				1.73 0	0.80 2				1.45 5
CVS1 9	0.72 6				1.23 8	0.76 6				1.45 2	0.69 9				1.95 9	0.71 0				1.85 5
CVS1 10	0.82	0.74 2	0.83	0.49 9	1.23 8	0.73 8	0.63 8	0.77 5	0.41 3	1.40 3	0.81 7	0.83 5	0.88 3	0.60 3	1.19 9	0.82 8	0.81 9	0.87 4	0.58 2	1.29 8
CVS1 4	0.61 8				1.19 5	0.53 2				1.18 8	0.79 0				1.51 0	0.72 0				1.47 5
CVS1 5	0.73 7				1.42 3	0.74 4				1.31 3	0.81 7				1.40 7	0.80 5				1.44 0
CVS1 7	0.57 9				1.34 6	0.59 0				1.49 2	0.72 5				1.27 5	0.71 6				1.34 4
CVS2 3	0.74 9				1.58 3	0.57 8				1.34 9	0.72 8				1.68 8	0.74 0				1.68 5
LSS1 1	0.69 1	0.49 8	0.72 3	0.39 7	1.08 6	0.58 0	0.53 9	0.74 3	0.42 1	1.10 1	0.75 5	0.71 2	0.82	0.53 9	1.38 2	0.71 2	0.69 5	0.81 4	0.52 2	1.27 3
LSS1 3	0.65 4				1.13 0	0.64 5				1.13 6	0.83 5				1.60 5	0.76 4				1.38 4
LSS1 4	0.58 9				1.09 3	0.62 6				1.14 2	0.53 8				1.17 3	0.67 3				1.26 8
LSS1 5	0.57 7				1.10 2	0.73 6				1.20 1	0.77 4				1.43 5	0.73 9				1.30 3
LSS2 1	0.64 7	0.57 9	0.75 9	0.44 1	1.17 7	0.73 2	0.58 6	0.76 1	0.44 5	1.23 8	0.79 9	0.76 5	0.85	0.58 6	1.59 7	0.78 3	0.71 3	0.82 2	0.53 7	1.45 9
LSS2 2	0.62 3				1.16 5	0.61 0				1.15 6	0.77 9				1.57 4	0.72 9				1.38 3
LSS2 3	0.68				1.15 6	0.65 2				1.20 1	0.69 6				1.34 8	0.68 0				1.29 1
LSS2 5	0.70 3				1.16 4	0.66 8				1.13 5	0.78 4				1.44 1	0.73 5				1.28 2

CVS1 = Perceptions of School Support ; CVS2 = Self-Efficacy & Advocacy; LSS1 = Perceptions of positive pedagogical practices;  
LSS2 = Acquisition of 21<sup>st</sup> century skills

**Appendix 6: Discriminant validity – cross loadings**

	Indonesia				Kyrgyzstan				Tanzania				Overall Sample			
	CVS1	CVS2	LSS1	LSS2	CVS1	CVS2	LSS1	LSS2	CVS1	CVS2	LSS1	LSS2	CVS1	CVS2	LSS1	LSS2
CVS13	0.333	0.620	0.289	0.198	0.362	0.628	0.194	0.246	0.467	0.684	0.385	0.364	0.439	0.674	0.367	0.332
CVS16	0.246	0.638	0.137	0.229	0.269	0.740	0.279	0.279	0.487	0.669	0.413	0.418	0.349	0.713	0.368	0.418
CVS18	0.345	0.802	0.292	0.327	0.349	0.756	0.278	0.329	0.452	0.773	0.466	0.387	0.480	0.802	0.443	0.440
CVS19	0.321	0.726	0.242	0.235	0.244	0.766	0.247	0.273	0.317	0.699	0.403	0.398	0.317	0.710	0.332	0.322
CVS110	0.820	0.344	0.342	0.195	0.738	0.235	0.425	0.315	0.817	0.506	0.491	0.403	0.828	0.456	0.543	0.441
CVS14	0.618	0.349	0.274	0.341	0.532	0.262	0.193	0.327	0.790	0.475	0.490	0.326	0.720	0.440	0.438	0.426
CVS15	0.737	0.266	0.306	0.238	0.744	0.265	0.309	0.299	0.817	0.493	0.477	0.351	0.805	0.426	0.475	0.405
CVS17	0.579	0.344	0.253	0.195	0.590	0.403	0.280	0.370	0.725	0.417	0.370	0.386	0.716	0.483	0.444	0.399
CVS23	0.749	0.281	0.291	0.300	0.578	0.204	0.251	0.443	0.728	0.393	0.223	0.337	0.740	0.382	0.434	0.338
LSS11	0.310	0.300	0.691	0.326	0.416	0.089	0.580	0.294	0.513	0.409	0.755	0.493	0.347	0.712	0.395	0.493
LSS13	0.209	0.201	0.654	0.307	0.257	0.344	0.645	0.377	0.474	0.545	0.835	0.433	0.437	0.764	0.458	0.433
LSS14	0.321	0.236	0.589	0.135	0.241	0.230	0.626	0.343	0.228	0.317	0.538	0.390	0.355	0.673	0.334	0.390
LSS15	0.210	0.131	0.577	0.280	0.306	0.232	0.736	0.449	0.454	0.434	0.774	0.458	0.356	0.739	0.491	0.458
LSS21	0.158	0.180	0.318	0.647	0.315	0.302	0.440	0.732	0.372	0.391	0.421	0.425	0.382	0.487	0.783	0.425
LSS22	0.198	0.212	0.250	0.623	0.192	0.256	0.316	0.610	0.247	0.388	0.370	0.330	0.354	0.398	0.729	0.330
LSS23	0.276	0.242	0.300	0.680	0.137	0.265	0.353	0.652	0.305	0.374	0.281	0.316	0.342	0.355	0.680	0.316
LSS25	0.324	0.305	0.264	0.703	0.450	0.225	0.394	0.668	0.398	0.475	0.425	0.458	0.405	0.460	0.735	0.458

CVS1 = Perceptions of School Support

CVS2 = Self-Efficacy & Advocacy

LSS1 = Perceptions of positive pedagogical practices

LSS2 = Acquisition of 21<sup>st</sup> century skills

