

AN EXAMINATION AND VALIDATION OF SOCIAL AND EMOTIONAL LEARNING SKILLS AMONG UNIVERSITY STUDENTS IN UGANDA

MIIRO FAROOQ

miirofaroog@gmail.com

Senior Lecturer, Department of Educational Management and Administration Islamic University in Uganda (Uganda). He is a specialist in educational leadership, with a primary focus on teaching thinking skills and integrating wisdom pedagogy into curriculum reform. He holds a PhD in Educational Management from the International Islamic University Malaysia (IIUM), alongside a Master of Education and a Bachelor of Arts with Education from the Islamic University in Uganda (IUIU). Currently, he serves as a Senior Lecturer in the Department of Educational Management and Administration at IUIU. With over 15 years of active engagement in higher education, Dr. Farooq has published more than 29 book chapters and peer-reviewed articles addressing the intersections of curriculum development, teacher education, and educational leadership in African and Islamic contexts. He has successfully led and collaborated on several educational reform projects aimed at enhancing teacher preparation and institutional management in Uganda and beyond. His research interests stem from a deep concern with the disconnection between education and human transformation. His scholarly inquiry explores pressing questions such as: Why do students lose motivation in learning? Why is the ethical and spiritual dimension of teaching diminishing in higher education? Why do educated societies still struggle with underdevelopment, poor leadership, and moral decline? Dr. Farooq's work is dedicated to rethinking the purpose of education through the lens of spirituality, critical thinking, and contextual relevance. His academic mission is to contribute to a more human-centered and values-driven approach to higher education in Africa and the broader Global South. ORCID: [0000-0002-1369-7535](https://orcid.org/0000-0002-1369-7535)

Abstract

The purpose of this study was to examine and validate the concept of Social emotional learning skills (SEL) among university students in Uganda . The concept has become an issue of relevance among scholars and academicians towards preparation of a holistic graduate. A cross-sectional research design, exploratory factor analysis (EFA) and confirmatory factor analysis of Structural Equation Modelling (SEM) were used to examine the hypothesized SEL measurement model. A randomly chosen sample of 664 volunteers was used to examine the Cronbach's alpha construct reliability and validity, composite reliability, maximal reliability, and discriminant and convergent validity standards. The findings of the study reflected that the hypothesized measurement model is a significant five-factor model with 24 items correlated with one another. The study recommends that HEIs and future studies can apply SEL measurement model based on the context and culture of a given area.

Keywords

B Social Emotional Learning, Self-Management, Self-Awareness, Responsible Decision Making, Social-Awareness, Relationship-Management.



Resumo

Este estudo tem por objetivo examinar e validar o conceito de “competências de aprendizagem socio-emocional” (Social and Emotional Learning – SEL) entre estudantes do ensino superior no Uganda. A relevância deste conceito tem vindo a aumentar no meio académico e científico, particularmente no que se refere à formação de graduados holísticos, capazes de integrar competências cognitivas e socio-emocionais. Recorreu-se a um desenho de investigação transversal, com a aplicação de uma Análise Fatorial Exploratória (AFE) e de uma Análise Fatorial Confirmatória através da Modelação por Equações Estruturais (Structural Equation Modelling – SEM), com vista a testar a adequação de um modelo hipotético de medição das competências SEL. A amostra do estudo foi constituída por 664 participantes, selecionados aleatoriamente, tendo sido analisadas a fiabilidade e a validade do construto com base em diversos indicadores estatísticos: alfa de Cronbach, fiabilidade composta, fiabilidade máxima e padrões de validade convergente e discriminante. Os resultados indicaram que o modelo hipotético de medição apresentou significância estatística, estruturando-se em cinco fatores principais, com um total de 24 itens intercorrelacionados. Estes achados sustentam a adequação do modelo teórico proposto no contexto específico da amostra estudada. O estudo recomenda, por conseguinte, que as Instituições de Ensino Superior considerem a aplicação deste modelo de competências SEL, devidamente adaptado ao contexto cultural e educacional em que se insere, e sugere a realização de investigações futuras que explorem a validade do modelo noutras realidades socioculturais.

Palavras-chave

Uganda, Ensino Superior, Aprendizagem Socio-Emocional, Autoconsciência, Decisão Responsável, Consciência Social.

How to cite this article

Farooq, Miiro (2025). An Examination and Validation of Social and Emotional Learning Skills among University Students in Uganda. *Janus.net, e-journal of international relations*. Thematic Dossier - *Internationalization of Higher Education: Experiences and Challenges*. VOL. 16, Nº. 1, TD1. June 2025, pp. 163-188. DOI <https://doi.org/10.26619/1647-7251.DT0325.11>.

Article submitted on 28th March 2025 and accepted for publication on 6 May 2025.





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Introduction

As the world continues to traverse through unprecedented moments in human life, the solution for any future challenges of any country in terms of political, social, economic and religious aspects of life will depend on the way schools nurture the learners of today. For instance; learners who come from poor backgrounds with family dysfunctions, abuse are likely not to face a miserable future if their emotional learning skills are not addressed (Baker, et al..., 2003; Nickolite & Doll, 2008). Therefore nurturing learners with SEL will help several countries to cause socio-economic cohesions among graduates. Unlike in the past centuries, countries that are more focused on the bright future of their citizens, have laid tremendous strategies to uplift their levels of civility through visionary education that encompasses stunning scientific adventures and innovation to help them thrive in the challenging socio-economic situations of all times. This is done to encounter opportunities and at the same time pave ways through which new dimensions that shape up human endeavors can be addressed to tackle issues of multiculturalism and socio-political issues through the use of social emotional learning. For instance, in the USA when the pressure for No Child Left Behind Act came into existence, a lot was experienced for example, states' laws governing students achievement, instructional practices and accountability changed due to the readily apparent needs of students that call for changes in the way teachers and schools nurture and address students' needs (Rohanna, et al., 2009).

To cope with the new trends of technological advancement and innovation, there is need for HEIs to rethink about the nature of education needed to raise the levels of civilization all over the world. This is due to the fact that there is no any other shortcut that the bright future of citizens will exist without research in these key forces that shape up the future times. Without thinking in these lines, educational institutions will remain operating using the past traditional methods especially in teaching and learning situations, the education strategies of tomorrow will remain a jeopardy and kill the developmental strategies for enhancing skills of thinking and reasoning among learners. It is therefore important for governments to prioritize investment in higher education to boost research, publication and academic excellence in areas like social emotional



learning skills. This approach will empower learners at HEIs with skills for self-management, self-awareness social responsibility and making responsible decisions (McCuin, 2012).

Since the wealth of any country lies in the education of its people, for countries to capture the soft and hardware technological standards of their people, there is need to imbue social emotional learning skills and practices in the higher education system so as to help learners and teachers discover themselves and think selflessly towards the development of their communities.

Given the increased research on the importance of Social emotional learning skills adoption in different education systems world over, a multidimensional nature of this concept should be sufficiently conceptualized and tested among university students. The purpose of this is to guide in the nurturing and upbringing of learners in different field of human development. This is due to the fact that these institutions play a very big role in preparation of the human capital required for socio-economic transformation and development. Even though this trend has been adopted in both developed and developing countries, Uganda's HEIs seem to be lagging behind in re-conceptualizing the curricula intertwined with this aspect of human development and growth. This is because many of their graduates seem not to mind about SEL skills. Also at present there is scanty information available to guide us on the nature and state of SEL constructs and their relationship at higher education level in Uganda.

Definition of social emotional learning

Social emotional and life skill learning have been talked about for years as means that help individuals recognize and control their sentiments, care for others, take good decisions, be responsible by behaving ethically well to develop relationships with others and avoid negative tendencies that hurt others (Elias, et al., 2007). Today, many parts of the world are looking at these skills as critical foundation for formation of future societies. It is important to note that acquiring knowledge in different disciplines and of itself alone cannot help to better the future of competent human being. However it is imperative that societies think in arenas of producing knowledge and intelligent mindsets coupled with caring attitudes and compassion for developing health communities. This cannot be attained without investing in training the stakeholders in the area of social emotional learning since most of the learners today are more in school based programs and activities.

Social emotional learning can be termed as a process through which both adults and children attain knowledge and skills needed to facilitate their relevance, efficiency and effectiveness in managing social contexts (Gehlbach & Hough, 2018). It a mechanism that many researchers and educationists propose to help learners understand how to deal with challenges of fear, frustration, guilt and blame (Reynolds, 2016). This process equips learners with techniques of recognition and management of emotion, development of care and being concerned about others, being responsible in decisions and establishment of good rapport and relationship in handling puzzling situations effectively



(Zhou & Ee, 2012). Meanwhile, CASEL (2003) refers to social emotional learning as a process by which learners acquire knowledge and skills to navigate through their life challenges. The philosophy of carrying out SEL is to help learners gain supportive ways and competences needed through learner-teacher relationship to address the challenging environment engulfed with unethical tendencies that require someone to be a good student, citizen, and worker that avoids many different risky behaviors.

Numerous studies have so far been done for instance; a study conducted by Poulou (2017) on students' emotional and behavioral difficulties; the role of teachers' social and emotional learning and teacher-student relations, with a sample of 98 teachers. It was established that teachers' perception of emotional intelligence and social emotional learning are not related to students' emotional and behavioral difficulties. Also Cooper (2010) stresses that there is need for coherence between different policies in regard to social emotional learning which educational sectors should give particular attention and provide solutions to social challenges that face the youth. In a study done by Buchanan and Gueldner (2009) on social and emotional learning in classroom; a survey of teacher's knowledge, perceptions, and practices in USA using a sample of 263, it found out that many teachers believed that SEL is relevant and should be given an important role towards receiving, training and support from different professions in order to improve students' academic performance.

Meanwhile, the world is going through situations of antagonism, merciless killings, and drought and drug abuse. These behaviours have not only made no difference between life and death in some parts of the world, but they have also caused several negative effects both in development and preservation of civilizations. Therefore to find solutions for similar challenges and those that are likely to happen in future, many countries are redefining the nature of their education systems from K-12 elementary levels of education so as to create a brighter future for their citizens (Miuro, 2017). Even though this is the practice at lower levels of education, there is need to capture social emotional learning skills at HEIs especially in Africa, Uganda inclusive. There is need to integrate HEIs curriculum with SEL in order to prepare well-grounded graduates for socio-economic transformation of their communities. Though, the biggest percentage of graduates do not measure to the standards in terms of social emotional learning skills, thus finding it hard to manage themselves and at the same time provide social services to their communities (Miuro & Baguma, 2023). Since there is anecdote of information on the concept of SEL among higher education institutions in Ugandan education institution, this research further intends to establish the constructs that measure this concept according to different schools of thought.

Moreover, at the same time today's leadership is required to pass on responsibility to graduates in order to drive the nations forward. Meanwhile in developing countries that normally face immense challenges of emotional difficulties for instance; African countries especially Uganda, do not seem to pay greater attention to this aspect especially in higher education institutions. Whereas, on the other hand higher education institutions are taken as hubs for providing solutions to community challenges (Farooq, 2024). It is therefore imperative that these institutions play a greater role of providing more productivity channels of higher performance to their graduates through emotional



learning skills to cope up with change demands of the time. In order to attain sustainable solutions towards human behaviours there is need to equip learners with the necessary skills required for enhancement of a harmonious society (Hull, et al., 2021).

Today's generation is in dire need of educators with the right mind set to address their behavioral challenges for purposes of boosting their academic performance (Barak, et al., 2020). This is because many of these students are exposed to different courses that sometimes limit their scope of reasoning and logical approaches for solutions to their challenges. It is therefore important that lecturer- student interaction is at its best to help them acquire both soft and hard skills of emotional learning (Jimbai et al., 2021). Owing to this kind of practice that many countries are opting for to improve the status of their graduates to boost the economic growth though, little seems to be taking place or known about SEL practice in higher education institutions (HEIs) especially in Uganda.

Countries are vying for better education as the major source of economic development and civilization. This is attributed to both the history of human civilization and global forces that help to shape up communities and their challenges. The global demands put it clear that for any country to survive in the next generation, its citizens must attain high skilled education in order to boost both individual and national growth (Miiro & Baguma, 2023). To achieve this dream, nations should integrate curriculum with social emotional learning skills to acquire reasonable levels of civility. This kind of practice is geared towards helping the disadvantaged from being exploited and at the same time maintaining equality at all levels. Whereas other parts of the world are focusing their resources on this aspect through several ways to ensure that every child is catered for in terms of quality education, the Ugandan situation does not seem to predict and portray the same picture. This study is therefore designed to examine and validate the current practice and factors of social emotional learning skills among university students in Uganda.

Literature review of social emotional learning skills

In the recent past decades, the issue of social emotional learning has received greater attention among researchers and educators. This kind of attention has cropped up due to changes the world forces for instance, commodification, privatization, capitalization are posing to influence human behavior especially the young generation. Many children of the future generation seem to be caught at crossroads with inhumane behaviours that some countries have been exposed to in different parts of the world. For that reason, there is need for schools to rescue the young generation and prepare them for the better future in terms of values and skills required for self-development and community transformation. To help children navigate school-related challenges, fostering teacher-student relationship is essential for adapting to changing educational demands (Poulou, 2017). To bridge this gap, schools should implement strategies that help learners develop self-awareness and resilience for future challenges. It is against this background that this study is designed to examine the social emotional learning skills among university students in Uganda.



For learners to attain support and competencies that help them gain skills that link the social, academic and emotional development, self-awareness, social awareness, recognition, and self-control of emotions, building relationship skills, empathy and being responsible in decision making should be considered as a foundation for students' progress in this aspect of life (Smart, 2017). To achieve better results of the said sub dimensions of SEL, there is need to integrate the existing curriculum with these sub constructs of SEL so as to improve learners' perceptions of life and its challenges (Gehlbach & Hough, 2018; Reynolds, 2016). Since HEIs play a greater role in generating solutions to society needs, challenges and desires, the onus is on them to ensure that they link the SEL components in curriculum, research and development of concepts that address social needs of their communities. Meanwhile Corcoran & Tormey, (2012), argue for an integration of traditional and modern theories in SEL assessment. However, their study lacks a cross-cultural perspectives, which is crucial for its application in diverse contexts like Uganda.

It is therefore vital that HEIs provide SEL programs since they play a significant role towards positive social response, emotional benefits and at the same time improve students' academic performance. Meanwhile, below are the components of social emotional learning as per results indicated in a study done by Zhou and Ee (2014) on Development and Validation of the Social Emotional Competence Questionnaire (SECQ). It was found that self-awareness, social awareness, self-management, relationship management and responsible decision-making are the five construct that measure SEL. These results were generated from a sample of 356 Singapore secondary schools and all the components from the questionnaire correlated through the use of Confirmatory Factor Analysis.

In addition, other scholars divide the dimensions of SEL into two, the primary and secondary, for instance; primary involves improvement in learning motivation, decrease in school dismissal rates, academic excellence as well as having more commitment to school programs whereas secondary involves increase in cooperation with others, development of problem solving and social skills, care for healthy life and commitment to society issues, and lastly, is less involvement in crimes, abuse of substance and improvement in family relationship (Gülcan Faika Ülvay, 2018).

Since there seems to be no agreed upon concept of social emotional learning and its measurements and this is brought about by the way different researchers understand the concept in relation to site and populations studies. This study employed the Collaborative for Academic, Social, and Emotional Learning (CASEL) (2008) which involves recognition and control of emotions, development of care and concern for others, establishment of positive relationships, making responsible decisions, management of challenging situations ethically and constructively. This comprehensive model which is complete enough in that it covers most of the critical aspects of both social and emotional competence as enumerated in other theoretical models (Bar-on, 2014; Ji & Dubois, 2013; Levesseur, 2015). This study found it reasonable enough to expand and examine the same model on Ugandan university students in the central region. This is because the model involves understanding both personal and other people's emotions so as to acquire skills for laying a firm ground and take responsible decisions(Cooper, 2010; Mayer et



al., 2012; Zhou & Ee, 2014). Below are the five sub constructs of the framework for social emotional learning; self-awareness, social awareness, self-management, relationship management and responsible decision making.

Self-awareness: This is a skill that requires one to discover him/herself in terms of strength, feelings, weakness, emotions and how they affect ones or her performance (Lee, et al., 2019). It requires self-discovery using one's cognitive capacity and laying a strategy of improving one's self development (Ji & Dubois, 2013). Moreover, learners who are aware of their inner person tend to recognize themselves and understand clearly the reasons behind their emotional reactions and lay strategies for self-management especially in both exciting and challenging situations (Levesseur, 2015). Equipping learning with skills of self-regulatory abilities is important, in that it helps them to acknowledge their emotions metacognitively and be in better position to develop self-control emotions mechanism and thus arrive at reasonable ways of making decisions.

Self- management: Is the ability to regulate someone's emotions and this can be seen in handling of stress, impulses' control and perseverance in overpowering obstacles faced. In this aspect learners are taught ways of monitoring their academic progress and scores and at the same time expressing their inner feelings appropriately. When this aspect is not done well, students who cannot control their feelings tend not to think and perform well, whereas, on the other side those who are exposed to these skills tend to be successful at work and also handle their peers relationships well (Adams, 2011; Gülcan Faika Ülvey, 2018; Uka, 2014).

Social awareness: Is the ability to read other individuals' cues and to comprehend and appropriately respond to their feelings. In simple terms, it implies the ability of an individual to appreciate diversity in background and culture, and to have empathy with others. It involves sharing emotions with friends and attaining a better way of relating with them (Nickolite & Doll, 2008; Uka, 2014). It is therefore important that lecturers and teachers at all levels of education help learners to acquire the skill of understanding other peoples' perspectives, attitudes and perceptions over certain issues and appreciate their levels and backgrounds. This kind of approach for instance; helps learners to interpret other peoples thoughts, feelings by demonstrating sensitivity over their matters in even complex situations. It also helps to explain the ambiguities and difficulty situations of using harmonious and peaceful means. Children who are natured with this aspect of SEL tend to have sensitivity, maturity in handling issues and inhibitory control(Bar-on, 2014; Zhou & Ee, 2014).

Relationship management: In this aspect friends play an important role in management of other students' affairs especially at school. Studies such as (Martín-Antón, et al., 2016)indicate that students who are rejected by friends tend to get isolated and feel like denied by the society. In such a situation when loneliness and isolation take lead, the student is likely to perform poorly and eventually leave the school if he/she is not cared about (Poulou, 2017).

Responsible decision making: It refers to having ability to make with ethics and safety meanings of arriving at decisions that do not only benefit an individual per se but also considers society wellbeing. This kind of approach can enable the learner to mind about



his or her academic excellence and equally think about the social situations that contribute to the wellbeing of the society and the school community (Baskin & Sipa, 2014).

Worldwide, the issue of integrating SEL concept into the curriculum reform is a national concern that calls for different strategies from different actors within the education sector for its proper development and implementation. From 1924 to date, Uganda's education system has gone through several stages of development and reforms (Tromp & Datzberger, 2021). However, the required results of a reformed curriculum have not been achieved as intended due to lack of quality teachers and professionalism at all levels of education imbued with SEL. The Teacher Initiative for Sub-Saharan Africa (TISSA) indicated that the quality of education in sub-Saharan Africa Uganda inclusive was facing serious challenges that range from lack of teacher professionalism, shortage of science teachers, inadequate quality assurance standards, under-professionalization of the teaching profession and low academic entry requirements into the teaching profession among others (Farooq, 2024). This has not only affected teacher professionalism but has also led to graduates without pre-requisite skills for self-development and human transformation.

Statement of the problem

There is increasing recognition and acknowledgement that social emotional learning skills influence learners' behavior in schools. In developed countries especially in America and India, research has shown that there is a link between students' academic achievement and emotional learning skills whenever it is applied (Guo et al., 2022; McCuin, 2012; Panayiotou, et al., 2019). Social emotional learning plays a pivotal role in shaping the future opportunities of today's learners, therefore schools and teachers should take it as a serious course of action and solution towards the emerging challenges that face the young generation (Hassan, Suhid, et al., 2010).

Accordingly, many studies have come up with different and distinct ways of conceptualizing and defining the meaning of social emotional learning concepts to address nurturing of student behavior, needs and monitoring progress. Because of the divergent opinions in regard to the meaning of SEL, its contextualization and cultural concerns, there is a need to explore and validate the measurement scale of the hypothesized model before its integration in the curricula (Bhatnagar & Many, 2022). This is because there is no agreed position among scholars, academicians and education practitioners on the significant standardized assessment tool and measurement scale of social emotional learning constructs both at national and international levels, which makes it difficult to understand and evaluate progress outcomes globally. Also the context and the purpose under which the SEL validation tool is conducted varies from one place to another, therefore this gives more room to examine the reliability and validity in each new setting.

Despite the increased recognition of the relevance of SEL, its application and emerging validation measurement tool as proposed by CASEL model within diverse educational and



cultural contexts remain unexplored and validated especially in Uganda, graduates are not contributing greatly to socio-economic transformation of their societies. This is attributed to education systems that have not changed to prepare a holistic personality especially at HEIs level.

For this purpose, this study is designed to examine the current practice in Higher education institutions with emphasis on the ways that are used to expose learners to social emotional learning skills, the curriculum and techniques used for its implementation. Furthermore, the many studies carried out for instance Conley and Conley (2015) social emotional learning in HEIs, advancing the science and practice of social and emotional learning: looking back and moving forward Osher, Kidron, and Weissberg (2016), the evidence base for how we learn supporting students' social, emotional, and academic development, Jones & Kahn (2017), Academic self-concept during the transition to upper secondary school Keyserlingk, Becker, and Jansen, (2019), social-emotional learning and academic achievement: using causal methods to explore classroom-level mechanisms McCormick, Connor, and Mcclowry (2015), investing in evidence based social and emotional learning companion guide to social and emotional learning interventions under the every student succeeds act: evidence review Jones and Kahn (2017), an empirical basis for linking social and emotional learning to academic performance Panayiotou et al., (2019), basic psychological needs satisfaction at school, behavioral school engagement, and academic achievement: Longitudinal reciprocal relations among elementary school students Wang, Tian, and Huebner (2019), Effects of peer-led training on academic self-efficacy, study strategies, and academic performance for first-year university students with and without reading difficulties Bergey, Parrila, Laroche, and Deacon (2019) have not explored and validated students' perception of SEL skills among universities in Uganda, thus forming bedrock for designing this study.

Objectives of the study

1. To examine the underlying structure of social emotional learning skills among universities in Uganda context
2. To validate the measurement model of social emotional learning skills among universities in Uganda.
3. To develop SEL assessment scale with reasonable psychometric properties to employ in Ugandan education sector.

Purpose of the study

The purpose of this study was to examine and validate the concept of social and emotional learning among university students in Uganda. This is because many Ugandan HEIs could be missing this aspect in the teaching and nurturing of future generations.



Research hypothesis

H₁. Social Emotional learning skills is a multidimensional construct comprising five interconnected dimensions.

H₂: The measurement model of SEL is multidimensional and valid construct.

Method

Participants and Sample

The study data was obtained from 664 students from both public and private universities. Majority of the sample were females with 56%, 26% studying in year one, 47.2% aged between 25-30. The targeted universities were located in different regions of the country that include; central, Eastern, etc. Furthermore, the data was analyzed using Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA) and Full Structural Equation Modelling (SEM), hence addressing the purpose of the study. The sample size of the study deemed reasonable to address the SEM parameter estimates.

Instrumentation

Since instrumentation is an important step in developing a research tool, its validity, and reliability. This study adopted and adapted a survey questionnaire for data collection with 5 sub constructs of SEL construct and 58 items used in previous different studies (Rimm-kaufman, 2014; Stavsky, 2015; Zhou & Ee, 2014). To arrive at the concrete reliability margin of error recommended, the researcher analyzed the data using EFA technique measure each of the individual sub dimension (Jayasinghe-Mudalige, et al., 2012). After EFA, the measurement model was examined using CFA of structural equation modelling analysis to establish whether it fits the model (Ary, Jacobs, & Sorensen, 2010; Byrne, 2009; Mann & Mann, 2011).

A five Likert scale ranging from strongly disagree to strongly agree was used to examine students' social emotional learning skills among universities. The reliability index of Cronbach Alpha for the five subconstructs ranged from an alpha .705 to .803 (self-awareness .706, social-awareness .715, self-management .739, relationship-management .737 and responsible-decision .803).

Data analysis

The data collected was stored in Excel and later transferred to SPSS version 22 for initial data cleaning and screening. The data was transformed to examine the reliability for each of the sub constructs, and descriptive analysis was conducted to show the demographic variables of all respondents. EFA was conducted to establish the items that measure each of the factors for the theory of Social emotional learning (SEL). To measure the relationship for all the constructs at once, the study employed structural equation modelling. This is a robust statistical technique that combines regression and



confirmatory factor analysis into a simultaneous test. Therefore to arrive at plausible results and at the same time test the theories and conceptual model of SEL using the Ugandan perspective this technique was deemed at reasonable for data analysis (Ary et al., 2010; Byrne, 2009).

Results

Underlying Structure of Social Emotional Learning Skills

The descriptive statistics for the dimensionality reduction of the items are shown in Table 1. The maximum score for each of the survey questionnaire items is 5. The hypothesized mean score for all items was below 2.5. Precisely, the mean score for all the items of the dimension SEL was less than .55. This implied that respondents had low levels of SEL. The Cronbach's alpha deemed reasonable.

Table 1. Factor Loadings, communalities, total variance explained and eigenvalue of the five-factor dimensions of the social emotional learning skills' construct.

Factor	Dimension & indicators of social emotional learning	Alpha	Mean	SD	Factor loading
Self-awareness	selfaware1	.706	4.0	1.051	.686
	selfaware2		4.1	.964	.641
	selfaware3		4.1	.982	.682
	selfaware4		4.0	1.050	.574
	selfaware5		3.8	1.162	.482
Social-awareness	Socialawa1	.715	3.0	1.270	.377
	Socialawa2		2.7	1.247	.688
	Socialawa3		3.1	1.305	.770
	Socialawa4		3.4	1.250	.774
	Socialawa5		2.7	1.250	.600
Self-Management	selfmagt1	.739	3.4	1.27	.692
	selfmagt2		3.8	1.11	.683
	selfmagt3		3.7	1.26	.728
	selfmagt4		3.6	1.27	.599
	selfmagt5		3.8	1.21	.479
Relationship-Management	relatiosh1	.737	4.1	1.10	.596
	relatiosh2		4.1	.955	.656
	relatiosh3		3.6	1.18	.610
	relatiosh4		3.5	1.21	.627
	relatiosh5		4.0	1.09	.533
Responsible decision making	respon1	.803	3.9	1.11	.569
	respon2		4.0	1.03	.683
	respon3		3.8	1.08	.728
	respon4		3.7	1.05	.712
	respon5		3.8	1.10	.784



To explore the underlying structure of responses to the 25 items of social emotional learning skills construct among students in HEIs, Principal Component Analysis (PCA) was conducted. The results from the sample of 664 showed that there was a justification for using Principal Component due to the degree of inter-correlation among the items measuring self-reported questionnaire among students. The findings on Kaiser-Meyer-Olkin Measure of Sampling Adequacy was .902, which was above the threshold of 0.7, Bartlett's Test of Sphericity Approx. Chi-Square 4663.045, degree of freedom (df) 300, sig .000. The correlation matrix produced indicated the best fit inter-correlation whereby the intercorrelation among the indicators accounted for 52% of the total variance explained. Oblimin method of axis rotation was used as a maximum likelihood procedure for the results obtained results.

As shown below the PCA given in the table 2 indicated five factors for SEL construct. The variance explained per factor reflects that responsible decision making was 6.77, self-awareness 2.18, self-management 1.46, social awareness 1.25 and relationship management 1.19. The findings are supported by an earlier study done by Belay and Dejene (2024), though differed in the number of items for factor number five. In contrary the study differed with the findings of Tomé-Fernández, et al., (2020) due to the fact that their study was produced on a scale of six underlying factors of SEL.

From the findings, it is reflected that the factor loadings were statistically significant and correlated with their items accordingly. The factor loading were of practical importance due to large scores showed was statistically significant at $P=.01$. There was also a strong and significant loadings for the five rotated factor loadings. Thus the findings reflected a perfectly matched logical grouping of the items. This paved way for further analysis using CFA. The commonality that loaded on each of the factors showed that the five factor loading have a significant impact on the construct SEL.

A CFA was conducted using the Analysis of Moment Structure to examine the maximum likelihood estimates for validating the hypothesized SEL five-factor measurement model (Miuro, et al., 2016). The findings from the initial analysis as shown in Figure 1 reflect that the CFA was conducted on a five factor structure measurement model of SEL with 25 items extracted from EFA as reflected in the previous studies (Ross & Tolan, 2018), though the goodness-of fit measurement model did not meet the requirement fixed indices comparative fit index (CFI), the relative or normed chi-square (χ^2/df), the root mean square error of approximation (RMSEA), degree of freedom (DF), and Chi-square. The required indices for fit goodness RMSEA values $\leq .08$, CFI values $\geq .90$, and $\chi^2/df \leq 5.0$ (Byrne, 2016) were also examined to arrive at measurement of the study.

To identify the regression coefficient for the error terms were fixed at 1 for the endogenous variables. In harmony with Amos analysis principles, the latent variables were represented in circle format, measurement errors as ellipses, and observed constructs (indicators/items) as rectangles (Byrne, 2016; Farooq, et al., 2017; Ross & Tolan, 2018). The hypothesized measurement model for SEL was conceptualized by five constructs inter-correlated double arrows in figures 1 and 2. These include;- social-awareness, self-management, self-awareness, relationship skills, social responsibility skills and responsible decision making. From the circles to rectangles are single headed



arrows that represent the regression paths. These arrows indicate the connection between sub-construct and their items. The study factor loadings are indicated on the trajectories and the single-headed arrows from ellipses to rectangles reflect the measurement error for each item (Silalayi, 2018; Yong & Pearce, 2013).

Table 1. Eigenvalues and Proportion of Variance explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings	
	Total	% of	Cumulati	Total	% of	Cumulative	Total	% of
		Variance	ve %		Variance	%		Variance
1	6.763	27.052	27.052	6.763	27.052	27.052	2.907	11.628
2	2.187	8.747	35.800	2.187	8.747	35.800	2.696	10.786
3	1.461	5.844	41.643	1.461	5.844	41.643	2.500	9.998
4	1.354	5.418	47.061	1.354	5.418	47.061	2.469	9.874
5	1.199	4.795	51.856	1.199	4.795	51.856	2.393	9.570
6	.939	3.754	55.610					
7	.881	3.522	59.133					
8	.812	3.247	62.379					
9	.793	3.172	65.551					
10	.741	2.964	68.515					
11	.693	2.774	71.289					
12	.653	2.612	73.901					
13	.631	2.523	76.424					
14	.625	2.500	78.924					
15	.604	2.414	81.339					
16	.563	2.250	83.589					
17	.546	2.185	85.774					
18	.533	2.133	87.907					
19	.517	2.067	89.974					
20	.494	1.976	91.950					
21	.430	1.721	93.671					
22	.423	1.692	95.363					
23	.402	1.610	96.972					
24	.391	1.562	98.535					
25	.366	1.465	100.000					

In Figure 1, the first five-factor hypothesized model with 25 items loaded on their respective constructs did not show satisfactory goodness-of-fit as mentioned before in that CFI= .896, Df= 265, ($\chi^2 = 723.618$, RMSEA=.052, $p < .001$; and $\chi^2/df = 2.731$).

To attain better goodness-of-fit indices requirements, a re-specified measurement model analysis was done on the same data though one item (sem5) on the sub-construct self-management with low loadings of .479 was deleted as shown as in Figure 2 below.



Figure 1. Confirmatory factor analysis of the hypothesized measurement model of SEL

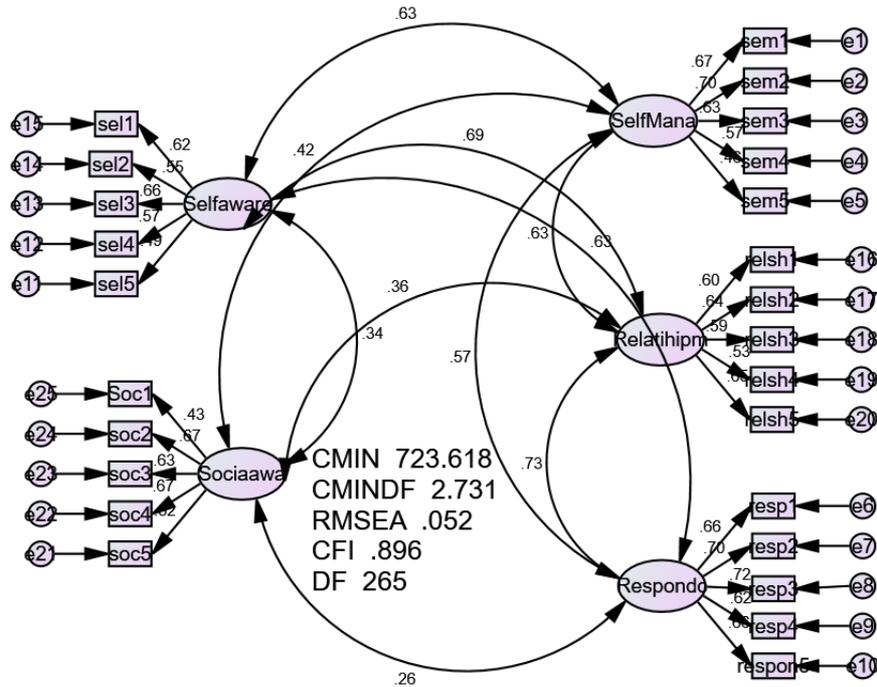
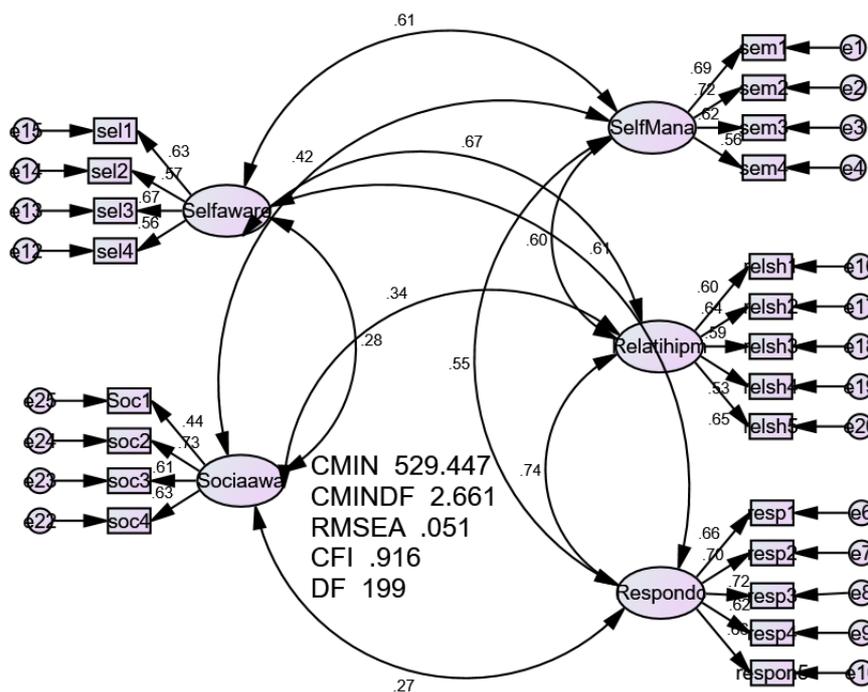


Figure 2. For re-specified hypothesized measurement model for social emotional learning skill' construct





The findings from the re-specified hypothesized measurement in Figure 2 indicate that CFI= .916, Df= 199, ($\chi^2 = 529.447$, RMSEA=.051, $p < .001$; and $\chi^2/df = 2.661$).

SEL Measurement model reliability and validity assessment

Table 3 - Convergent validity for social emotional learning skills construct

Sub construct	Items	Factor loading
Self-Management	Sem1	.693
	Sem2	.715
	Sem3	.616
	Sem4	.558
Cronbach's Alpha ≥ 0.7		.738
Composite reliability		0.74
Average variance explained		0.76
Responsible decision Making	Resp1	.663
	Resp2	.699
	Resp3	.719
	Resp4	.616
	Resp5	.655
Cronbach's Alpha ≥ 0.7		0.74
Composite reliability		0.88
Average variance explained		0.55
Self-awareness	Sel1	.618
	Sel2	.551
	Sel3	.661
	Sel4	.568
Cronbach's Alpha ≥ 0.7		0.71
Composite reliability		0.72
Average variance explained		.044
Relationship-management	Relsh1	.598
	Relsh2	.639
	Relsh3	.592
	Relsh4	.533
	Relsh5	.652
Cronbach's Alpha ≥ 0.7		803
Composite reliability		0.78
Average variance explained		0.44
Social-awareness	Soc2	.673
	Soc3	.643
	Soc4	.674
	Soc5	.520
	Cronbach's Alpha ≥ 0.7	
Composite reliability		0.73
Average variance explained		0.43
Cronbach alpha for 19 items		.847



Despite the high Cronbach’s alpha (α) of 0.7 (ranging from .715-.803) for all the SEL sub-constructs to achieve the acceptable measurement model requirements, another step was taken to establish both construct validity and reliability as shown in table 3 below, the reliability and validity were assessed using composite reliability(CR) and average variance explained from the Table 3 below showed that CR values exceeded .7 ranging from 0.71-81, thus indicating a good construct reliability. There was a slight divergence in the items of five multidimensional of the hypothesized model of SEL. This suggests that the conceptualization and definition of SEL vary from one country to another(Belay & Dejene, 2024; Ross & Tolan, 2018;). The study findings reflected that the respondents were above to differentiate the five study subconstructs of SEL as indicated in Table 3 below.

Social Emotional Learning Psychometric Properties

It is portrayed from figure 2 that the specified model of SEL construct is a unified model with five latent variables with standardized regression coefficients paths and indicator items (self-management, social-awareness, responsible decision-making self-awareness, and , relationship skills,). The results further indicated that standardized coefficient values were between .43 to .72, reflecting reasonable significant factor loadings at $p < .001$ (see Table2).

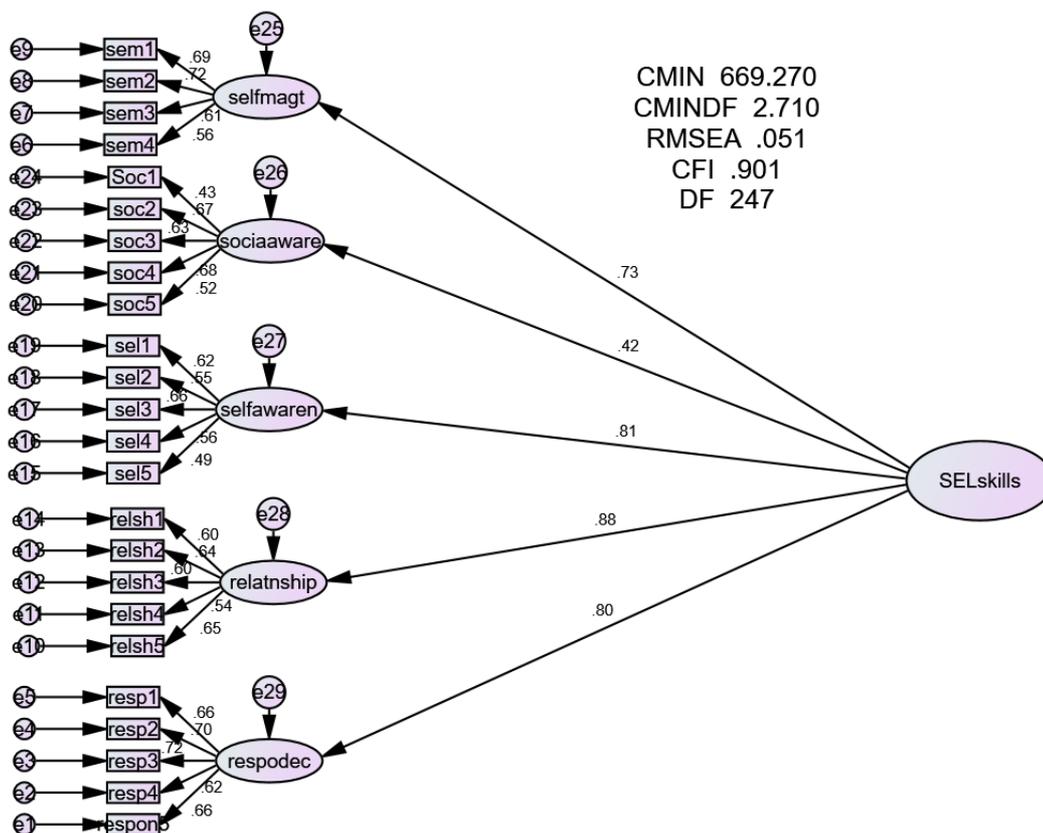
Table 4. Shows AVE for Social Emotional Learning Skills Measurement Model.

Dimension	1	2	3	4	5
SelfMagt	0.51	0.53	0.52	0.29	0.48
Respdeci	0.73	0.54	0.42	0.30	0.48
Selfaware	0.72	0.65	0.44	0.30	0.48
Relnshp	0.54	0.55	0.55	0.50	0.24
Sociaware	0.69	0.69	0.69	0.49	0.47
Composite Reliability	0.74	0.88	0.72	0.78	0.73

Under the diagonal in Table 4 above is the correlation matrix, above the diagonal are the average variance explained value,. while the shared values variance matrix is above the diagonal.



Figure 3. second-order factor analysis of SEL hypothesized model with standardized estimates



From the study results, Figure 3 indicates second-order measurement model of SEL skills generated through confirmatory factor analysis. The findings reflected significant strong significant indicators at $p < .001$ in that responsible decision making value ($\beta = .80$), relationship skills ($\beta = .88$), self-awareness scored ($\beta = .81$), Social-awareness ($\beta = .42$), and self-management ($\beta = .73$). This implies that relationship skills scored the highest variance explained at 88%, followed by self-awareness scored 81%, responsible decision making value 80%, self-management 73%, and social-awareness 42% across universities in Uganda. The findings further revealed that the hypothesis that SEL is a five structure measurement model is valid and reliable, and its constructs are specifically and systematically associated with it.

Discussion

The study findings in the tables indicate that there was evidence for convergent validity because the 70% of the values of the AVE for SEL were above 0.5, representing satisfactory convergent validity discriminant validity was also realized due to large values corresponding with shared values (values above the diagonal). The inter-factor correlation was moderate (Hair, et al., 2010). This showed that SEL is a multidimensional construct with inter-related factors but distinct in nature. The data reflects that the study composite reliability values ranged from 0.72 (self-awareness) to 0.88 (responsible



decision making). This implies that the values were high enough and above the acceptable values thus providing proof of convergent validity (Lam, 2012)

The consistence of validity and reliability of SEL construct survey tool differs from one country to another. Therefore it is important for researchers that before using CFA and full SEM at the same time, an analysis of EFA should always be done first in order to come up with better factor loadings.

The results from Figure 1 obtained using CFA showed that the hypothesized model of SEL is a multidimensional construct with five subconstructs, and these did not meet the standardized goodness-of-fit for using SEM (Awang, et al., 2017). The study further contributed to the body of knowledge by examining and validating the existing survey tool however, self-management constructs proved that in the context of Uganda is measured with four items. This is because some of its items loaded below the required value scores. The five-factor measurement model is in agreement with earlier studies like (Chernyshenko, 2018; Ross & Tolan, 2018; Saxe, 2011).

The study further indicates that SEL measurement model should be implemented based on context and culture of a given place, this will ease the work of different stakeholders in the sector of education (CASEL, 2013, 2015). A strong positive correlation among the five factor and their item indicators was shown by the study findings. This implies that SEL is holistic in nature due to interconnectedness among the its sub constructs. The study has added on the advocacy of fostering and integrating SEL in the curricula of different levels of education in order to prepare a holistic graduate for socio-economic transformation of their societies (Hicks, 2012; Kivunja, 2014).

Limitation

The key interest of this study as purported by the author was to examine and validate the hypothesized theoretical model of SEL, The intention was to have strong factor loadings for the entire measurement model fit with all its item loadings on the factors. However, one of the items for self-management sub construct did not meet the standards.

The study was not longitudinal due to high costs that were required, therefore it was done using a cross-sectional survey design on a particular group of students in the central region.

Conclusions and Recommendations

This is the first kind of study done in Uganda to validate SEL hypothesized conceptual model as a measurement model. The study findings provide a robust support for integration of model in curriculum and management of social emotional skills especially at HEIs. Though the results were gained from a self-report survey tool, the findings are applicable across different ages of sample cohorts. A study with mixed methods with more diverse and large sample of participants across the country is needed to establish the robustness across age groups of different education levels. Future studies on SEL have a basis of using this reliable and valid measurement model to examine the trajectories of the five sub-constructs of SEL, the difference in their meaning, and function of the entire design.



HEIs should also train lectures in SEL skills in order to train graduates who are imbued with skills of self-management and self-awareness to make responsible decisions that affect their relationship and social responsibility positively.

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