

Enhancing Policy Decisions to Foster Higher-Order Cognitive Skills among IT Graduates in Sri Lanka

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Abstract

The 21st-century educational hub has strengthened the demand for graduates not only with technical knowledge but also with advanced higher cognitive skills capabilities such as critical thinking, advanced problem solving, innovation, and adaptive reasoning defined as Higher-Order Cognitive Skills (HOCS). In the Information Technology (IT) field, HOCS are vital for handling dynamic situations in composed with solving complex problems, making informed decisions, and contributing to digital innovation. In Sri Lanka, a substantial policy and practice not forming to filled the gap between the students' higher order cognitive competencies and expertise's expected level of HOCS for industry requirement. This study addresses that gap identified by the industry expertise and providing recommendations for policy makers for systematically embed HOCS development for the IT higher education system in Sri Lanka. Quantitative research approach was conducted to collect data from industry experts to identify the issues and current status of HOCS among newly joined IT graduates in product, service and product-and-service based SLASSCOM registered IT companies in Sri Lanka. This research identified the most crucial HOCS and their effect on different kind of activities in IT industry. Findings from this research will help to make recommendations to develop an actionable framework for national policy makers to filled the gap between current level and required leave HOCS in IT industry. Quantitative data collected from 30 front line managers and tech leads in different SLASSCOM registered IT companies in Sri Lanka. Analytical reasoning, adaptive problem-solving, and critical thinking are identified as the top priorities HOCS across entry-level IT graduates. Those systemic weaknesses beginning with weak curriculum design, assessment mechanisms, faculty readiness, and policy enforcement of government and relevant academic institute in Sri Lanka. Academic leaders, curriculum developers, and industry stakeholders has highlighted responsibilities to filled this identified gap. University Grants Commission (UGC), Quality Assurance and Accreditation Council (QAAC), or the Ministry of Higher Education should improve the policy guidelines to enhance the HOCS among IT graduates in higher education in Sr Lanka.

Keywords: *Higher-Order Cognitive Skills, IT Education Policy, Sri Lanka, Curriculum Development, Graduate Employability, Framework*

Introduction

The global digital transformation directly aligned shaping innovation and technological advancement of IT professionals in the modern world. In parallel, the Higher Order Cognitive Skills (HOCS) also known as the Higher Order Thinking Skills (HOTS) demand on IT graduates have increased drastically. In Sri Lanka, despite substantial investment in IT industry and IT education. Identified by the industry stakeholders is the insufficient readiness of graduates in applying such HOCS in complex real-world scenarios associated with IT industry demand.

This research addresses the essential for a providing recommendation to develop a comprehensive framework aimed at enhancing HOCS within Sri Lanka's IT higher education landscape. The study is grounded in cognitive and educational theories and dealing with national development strategies aligned with the Fourth Industrial Revolution (4IR).

Literature Review

HOCS encompassing analysis, evaluation, synthesis, problem-solving, and creative thinking are central to preparing students not only for examinations, but for life-long learning and professional success in dynamic fields such as science, mathematics, information technology (IT), and beyond (Anderson & Krathwohl, 2001; Zohar & Dori, 2003). HOCS are recognized, in the context of higher education as essential for developing graduates who can adapt to emerging technologies, solve complex problems, and think critically in professional settings (Zohar & Dori, 2003). Theories such as Bloom's Revised Taxonomy and constructivist learning models emphasize that the cultivation of HOCS requires pedagogical environments that prioritize active, reflective, and contextual learning experiences (Biggs & Tang, 2011).

In Sri Lanka, the IT sector has expanded significantly, yet empirical studies suggest a growing disconnect between graduate skillsets and industry expectations, particularly regarding cognitive flexibility and problem-solving (Wijesundara & Samaranyake, 2020). While national education frameworks emphasize technical competency, there is a lack of policy-level initiatives and curriculum integration aimed at fostering HOCS. International models such as those implemented in Singapore and Finland show that aligning educational policy with cognitive skill development can significantly enhance graduate employability and innovation capacity (Trilling & Fadel, 2009; Voogt & Roblin, 2012). These global examples highlight the need for a policy-level framework in Sri Lanka to systematically enhance HOCS within IT education.

Methodology

A structured questionnaire was distributed among front line IT professionals in SLASSCOM registered IT companies in Sri Lanka. SLASSCOM categorized IT company mainly in three (03) categories such as product based, service based and product-and-service based. The sample of size 30 was determined using stratified random sampling. Data were collected over a three-month period (April–June 2025). The instrument measured cognitive capacities in areas such as analytical reasoning, adaptive problem-solving, and critical thinking using a 5-point Likert scale with section A: Demographic details (e.g., age, gender, role, years of experience, company type/size) and section B: Likert-scale statements (5-point scale: 1 = Strongly Disagree to 5 = Strongly Agree) to measure perceptions of the three target HOCS AR, PB, and CT within day to day professional tasks.

For the data analysis used descriptive statistics were computed to summarize demographic profiles and the overall distribution of HOCS scores. And inferential statistics were applied to identify significant differences in HOCS scores across demographic variables. Prior to the study, ethical clearance was obtained from the affiliated university's ethics review committee.

The proposed framework advances a multi-tiered policy solution that addresses the national, institutional, and instructional levels. At the national policy level, it calls for the inclusion of HOCS as core graduate attributes in accreditation standards, curriculum review guidelines, and national qualification frameworks. At the institutional level, it promotes strategic curriculum redesign, capacity-building programs for educators in cognitive pedagogies, and the development of outcome-based assessment practices. At the instructional level, the framework encourages the adoption of active learning strategies such as problem-based learning, case study analysis, and project-based learning designed to foster cognitive engagement and critical reflection.

This policy-driven framework aims to inform decision-makers in government, academia, and industry on how to align educational outcomes with the cognitive demands of the modern IT workforce. It provides concrete, evidence-based recommendations that can be adopted by the University Grants Commission, curriculum councils, academic institutions, and IT faculties to reform both structure and practice. Importantly, it emphasizes the urgency of policy intervention not only to address skill gaps but also to elevate the role of HOCS as a strategic national priority in producing globally competitive, innovative IT professionals.

By focusing on the intersection of cognitive skills and educational policymaking, this research contributes to broader educational reform efforts and supports Sri Lanka's vision of becoming a digitally empowered knowledge economy. The findings advocate for a shift from input-based education to one grounded in

measurable learning outcomes, cognitive competencies, and lifelong adaptability hallmarks of a resilient digital workforce.

Results and Discussion

Data were analyzed using SPSS software. Results reveal that critical insights into the current status, gaps, and developmental opportunities for Higher-Order Cognitive Skills (HOCS) in Sri Lanka's IT higher education sector. Based on expertise idea, only 34% of students had threshold considered “proficient” in HOCS. 45% of newly joint IT graduates demonstrated weaker problem-solving skills when handling complex IT problem. However, over 60% of IT employees exhibited limited ability to analyze complex problems, evaluate alternatives, or justify decisions with logical reasoning. 72% of respondents indicated that new IT graduates had rarely engaged in structured critical thinking or problem-solving tasks. Based on evaluation of IT expertise, recent joint IT employees, who had been exposed to Project-Based Learning (PBL) or case-based teaching scored significantly higher on HOCS scales (mean difference statistically significant at 5% level). The correlation suggests a strong relationship between active learning environments and the development of cognitive flexibility and reasoning ability. Industry stakeholders noted that new IT graduates often struggle to apply theoretical knowledge in dynamic or unfamiliar scenarios. Usually, new IT graduates know how to do code, but when asking why they chose a certain solution over another, most don't have a structured answer. HOCS levels generally below the industry expectations and especially in curricular support needed to build HOCS progressively. National policy is essential for create a guideline on HOCS integration as a pedagogical standard.

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English Language Needs of Women Entrepreneurs in Small and Medium Scale Enterprises: A Study in Badulla District

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Introduction to the Study

This study explored the English language needs, specifically the wants of women entrepreneurs in Small and Medium-Scale enterprises in Sri Lanka. It critically examined the challenges they encounter as women entrepreneurs within the socio-cultural context of Sri Lanka, the difficulties they face in using English for business communication purposes, and the role that the English language plays in the business world, both in the global and local context. Their perspectives in relation to the power that the language wields over the empowerment of women entrepreneurs and their identity were further investigated. In analyzing those perspectives, phenomena, concepts, and relationships that exist between them, Bonny Norton's Social Identity Theory, which emphasizes the interplay between identity, power, investment, and second language acquisition, was utilized.

This approach critically examines the influence that the English language exerts in shaping the dynamics between language learners and the English-speaking community. By exploring these concepts, the study aimed to elucidate how language not only serves as a tool for communication but also as a significant factor in the formation of social identity and power relations within sociolinguistic contexts. Furthermore, the notion of investing in the target language to gain access to resources that lead learners to enrich their cultural capital and social power was also examined.

The rationale that instigates the purpose of the study was the limited learning opportunities provided for women entrepreneurs who are in the small and medium scale enterprises in Sri Lanka, and their disadvantaged social position that circumscribed them to the lower echelons of the business community. They remain confined to their small and medium enterprises, especially in the rural sectors. They encounter difficulties in moving into the international sphere due to their lack of competency in English, since that deficiency diminishes the desirability of their business projects within the global market (British Council, 2020).

Furthermore, according to Ayudarei (2005), the English language was the major constraint encountered by women entrepreneurs in the Northeast of Sri Lanka when attending training opportunities conducted by international non-governmental organisations (INGOs). Those training programmes were mostly conducted in English, and due to their incompetence in English, these women entrepreneurs could

not achieve positive results (Ayadurai, 2005). Abeysekara (2024) identified that as a result of the lower competence in English, local entrepreneurs expressed reluctance to participate in the workshops, conferences, and seminars that were conducted in the medium of English. Predominantly, they remained silent observers throughout the sessions due to the language constraints. Further, both local and international authorities identified the challenge of approaching SME entrepreneurs and fostering their effective engagement as a critical issue that arises due to the English language barrier. Thus, Abeysekara (2024) highlighted the necessity of investigating this issue further.

According to the observations made in relation to the present social milieu, it was deemed vital to explore the women entrepreneurs' perspectives on English Language needs and identify their specific English language needs. Particularly, investigating their opinion towards the necessity of developing an English for Specific Purposes curriculum tailored to address the specific English language needs of women entrepreneurs in the Sri Lankan SME sector was a major objective of the study. The findings of the study create a pathway towards providing specific recommendations for structuring a curriculum that focuses on enhancing the English language competency level of the women entrepreneurs.

Methods and Methodology

The study utilized the qualitative research method and was based on the interpretivist philosophy. The qualitative study was conducted to investigate the opinions, issues, experiences, necessity, and motivation of women entrepreneurs to utilize the English language as the medium of communication in developing their business performance and empowering their identity. The study conducted focus group discussions with selected women entrepreneurs from the Badulla district.

Sampling technique and sample population

The participants were selected using non-probability sampling (purposive sampling) since the selection of the participants was conducted based on an inclusion and exclusion criterion. The women entrepreneurs who are in the age category of ≥ 15 and engaged in handling small and medium-scale enterprises, which are categorized under local industries, for example, food processing, handicrafts, handloom and batik textile, floriculture, etc., were selected for the sample population. Further, in considering the inclusion criteria, it is required to identify the parameter that defines the small and medium-scale enterprises in Sri Lanka. Small and medium-scale enterprises are defined as enterprises that employ less than 300 employees and with annual revenue that does not exceed 750 million LKR (Central Bank of Sri Lanka, 2017; Ministry of Industry and Commerce, 2017).

The selection of the age group is determined as ≥ 15 , according to the definition and age group categorization of labour force participation indicated in Sri Lanka Labour Force Statistics developed by the Department of Census and Statistics (2022). Further, from the population of selected women entrepreneurs who meet the attributes of the inclusion criteria, the small and medium-scale enterprises with export potential and opportunities were selected under the consultation of the National Enterprise Development Authority and the district officers. The women entrepreneurs whose enterprises do not have export potential were excluded from the selection. In selecting the women entrepreneurs based on their export potential, the officials of NEDA provided consultation as the key informants. Then the participants were provided with an information sheet which included the details of the research, and their written informed consent was obtained. The women entrepreneurs who provided written informed consent were enrolled as participants of the study. The selected participants were verbally informed about their eligibility to participate in the study, and they were invited to focus group discussions.

The study focused on enrolling 8 participants per group since the generally accepted number of participants for a focus group is between 6-8 (Krueger & Casey, 2000; Nyumba, Wilson, Derrick, & Mukherjee, 2018), and the time duration allocated for a group discussion is 2 hours. In relation to the focus group discussion, the rule of thumb for the duration of the meeting is 1-2 hours (Gibson, 2012). The focus group interview protocol of the current study includes 8 questions including engagement questions, exploration questions, and exit questions (Masadeh, 2012). According to Kreuger (1988), focused group interviews should consist of fewer than 10 questions, and as Stewart and Shamdasani (1990) claim, the number of questions should be less than 12.

Data collection techniques and procedures

Two focus group discussions were conducted with the 16 selected women entrepreneurs. This research is a part of a broader study conducted across all the provinces in Sri Lanka, and two groups comprised of women entrepreneurs with export potential were selected from the district with the highest number of women entrepreneurs in each province, based on the recommendations of the National Enterprise Development Authority. The data collection involved 18 focus group discussions with a total of 144 participants across all nine districts. However, this particular research focuses solely on the Badualla district.

The data received from focus group discussions were analyzed through thematic analysis since that allows the researcher to identify, describe, and interpret themes through intensive reading of the transcribed data. For the analysis, ATLAS.ti scientific software was used. In conducting the thematic analysis, both inductive and deductive approaches were utilized. The transcribed data were transferred to the

ATLAS.ti for analysis, and the transcripts were carefully examined to familiarise with the data. Then all the transcripts were coded using ALTAS.ti coding feature by selecting phrases, sentences, and paragraphs that are relevant. A large number of codes (n==75) emerged, and the codes were analyzed to examine patterns and relationships between the codes, and similar or multiple codes were combined to generate potential themes in relation to research questions.

The coded extracts were cross-referenced with the generated themes to examine whether they create a coherence pattern. In the review process, certain sub-themes were merged with main themes or discarded. After clustering themes together, seven different categories emerged: Mostly used skills, suggested subject areas for the course, challenges, status of English, purposes of using English, current situation, and the most difficult skills to improve. They were identified as the main themes derived from the entire data set.

Results and Discussion

Thematic analysis focused on interpreting transcribed texts to investigate the women entrepreneurs' perspectives on the challenges they encountered in continuing their businesses and the influence of the English language on their business activities. Further, their opinions on the specific English language skills and subject areas that they require improvement were analyzed.

The results of the analysis of the challenges indicated diverse issues encountered by women entrepreneurs in the SME sector in Sri Lanka. Yet, as the most commonly experienced challenges by both the groups, English and IT barriers, Family issues, lack of market opportunities, lack of support from the government institutes, low competency in English, and difficulty in communicating in English were highlighted.

Among those most frequently and commonly encountered barriers, low competency in English and the difficulty in communicating in English can be indicated as some of the major intimidating factors that negatively influence the advancement of businesses, networking, social recognition, business empowerment, and opportunity to access the global market. In relation to low competency in English, a woman entrepreneur from the Badulla district expressed that,

“I am a woman entrepreneur from Ella who sells candles. Due to my lack of English knowledge, I cannot do my business work properly.”

Emphasizing further on the low competency in English, another participant stated that she was deprived of lots of advantageous opportunities due to her inability to communicate in English.

“The first session was held in the Hilton Hotel. The whole programme was conducted in English. I could understand what was being said and could express myself using a few words and phrases. But I don't have a high level of English

language competence. At that time, I felt I was doing damage to my district because I could not express myself in English, so I couldn't express my ideas and opinions. While 8 people were speaking in English, I was speaking in Sinhala”.

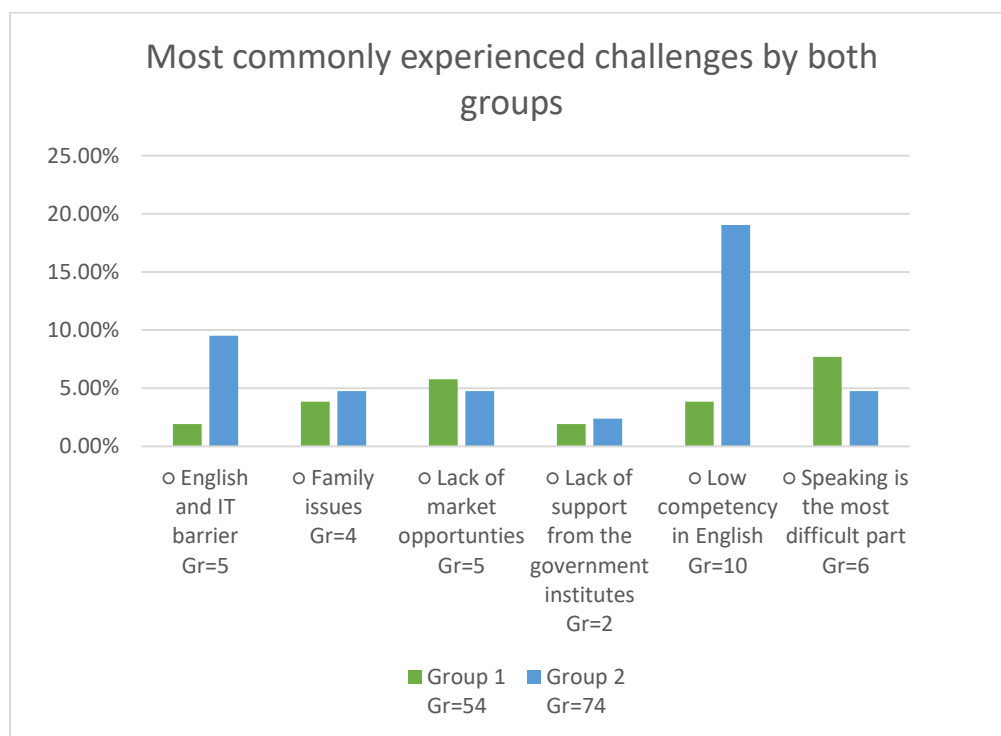


Figure 1: Most commonly experienced challenges by both groups

Participants noted that communication difficulties in English stem from a lack of regular speaking practice in the Sri Lankan context. Additionally, many individuals hesitate to communicate in English due to insecurities arising from the belief that others might laugh at their mistakes.

English and communication skills are given a high value as the most vital soft skills that are needed in the service-oriented economies in South Asian countries in enhancing the competitiveness of entrepreneurs (The Economist Intelligence Unit, 2013). English, especially Business English, is considered the main medium of communication in maintaining business relations since it acts as a lingua franca (Tenzer et al., 2017). Thus, the study aimed at investigating the perspectives that women entrepreneurs hold pertaining to the role that the English language performs, its ascribed status within the society, and the impact it creates on the empowerment of women entrepreneurs. While the participants emphasized the necessity of English knowledge for advancing their businesses, they further elaborated that their English

language competency level has the potential to determine the extent they can develop their businesses.

“From the labelling itself, English is needed. English is essential. The level of English knowledge we have determines how far we can go”.

The thematic analysis revealed that the lack of English language competency detrimentally affects businesses, restricting their progress and depriving them of opportunities. This language gap constrained them to the local market, barricading them from getting access to the export market. As one of the participants mentioned,

“Without English, my business is limited to the local market. I’m trying to extend my business to the export market. But to continue with the exporting process, we need a high level of English competency”.

Participants indicated that there is a relationship between the English language and the empowerment of women entrepreneurs. Thus, affirming Bonny Norton’s (2000) theoretical assumption that second language learning leads to identity formation, participants elucidate that through enhancing their English language competency, they will be able to create a new identity with more recognition. As per their experiences, the power vested in English possesses the authority to facilitate them with a pathway to ascend the value chain in the business context while delegating them with a novel identity that asserts their right to gain more social recognition.

“Learning English will be a value addition, and through that, they will be able to move away from the current identity.”

Furthermore, their belief that proficiency in English will contribute to the development of their personality underscores the elevated status attributed to the English language. Within this backdrop, participants in both groups affirmed the necessity of the implementation of an English language programme. According to their viewpoints, despite the implementation of diverse training programmes aimed at addressing general issues, a notable absence of a targeted initiative to tackle English language barriers exists. Hence, this gap highlights the need to develop a specific English programme dedicated to addressing the specific English language needs of women entrepreneurs. Accordingly, the study examined the personal opinions and suggestions of the participants pertaining to the specific subject areas and skills that need to be incorporated into the programme.

The results of the co-occurrence analysis revealed that while both groups have language requirements that are different from each other, the majority of the subject areas suggested by both parties indicate their common interests. The suggested areas and skills can be classified according to four main categories: Speaking. Reading. Writing and Listening.

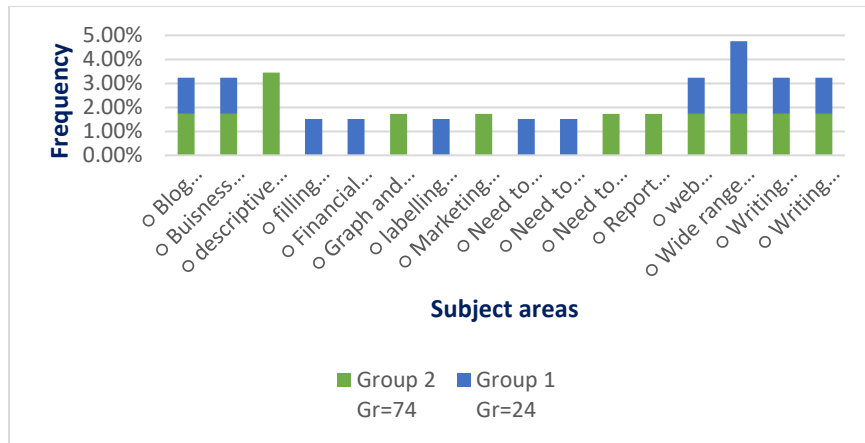


Figure 2: Writing skills that need improvement

Thus, blog writing, writing business proposals, descriptive writing, developing financial statements, filling forms and applications, analyzing graphs and charts, writing business letters and emails, writing content for presentations, creative labelling, content writing for web, social media, advertisements and flyers, writing articles, report writing and developing marketing plans were highlighted as the areas that participants require to enhance under the category of writing. Areas of common interest between the parties include blog writing, writing business proposals, web content writing, writing articles, and creating content for advertisements, flyers, and leaflets. A wide range of business and technical vocabulary for writing has gained the highest level of preference.

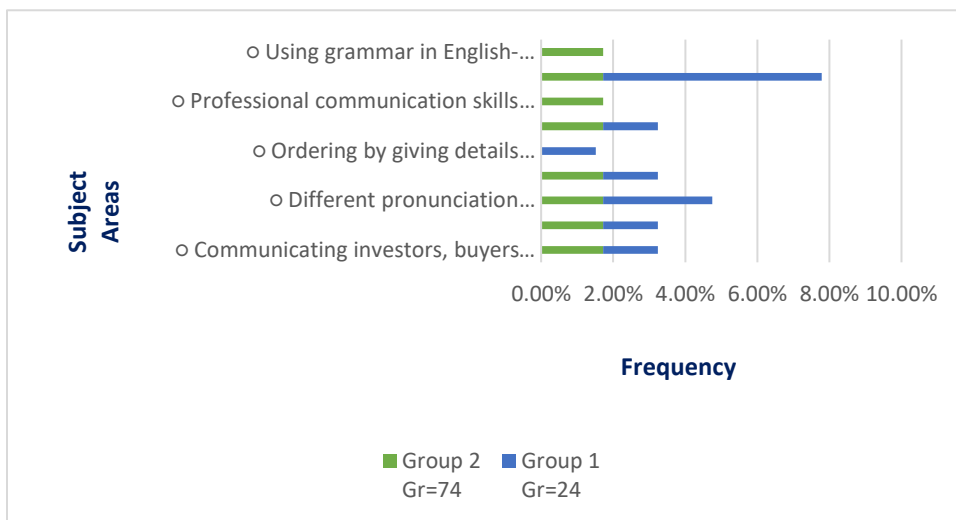


Figure 3: Speaking skills that need improvement

In relation to speaking, areas for improvement were identified, including communicating with investors, buyers, and suppliers, pronunciation skills, negotiation skills, providing details when placing orders, presentation skills, professional communication skills, explaining product details, using grammar in speaking, and handling customer interactions. Among those skills, explaining product details and pronunciation skills received a higher level of preference.

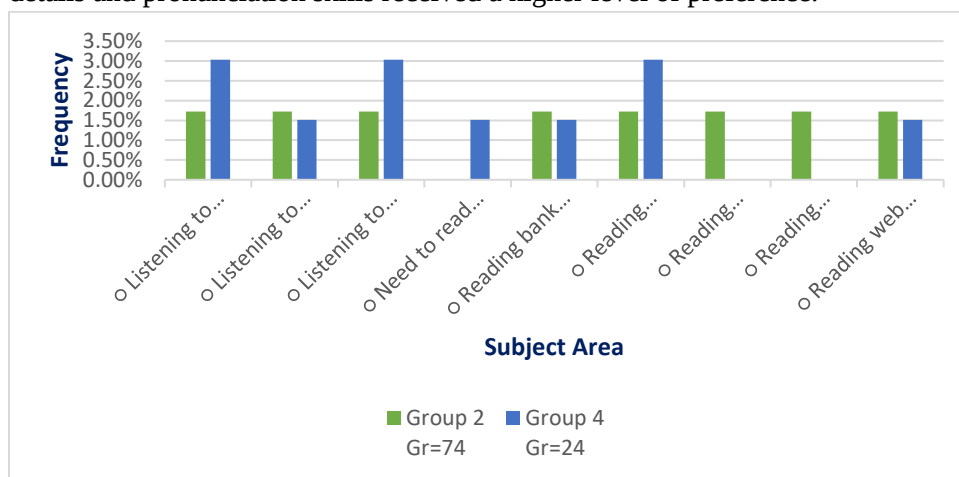


Figure 4: Reading and Listening skills that need improvement

Reading skills were also stated as a crucial element for the success of the business ventures of women entrepreneurs. Thus, reading newspapers, business magazines, bank agreements, memorandums of understanding, business letters, emails, reports, tenders, and web articles were mentioned as the business-related resources to be used in improving reading skills and developing their vocabulary. As the learning needs under the listening category, participants highlighted listening to business conversations with different scenarios, motivational speeches, success stories, and videos on different products and techniques as the activities to be conducted in enhancing their listening and interpretation skills.

Conclusion and Remarks

The results of the study highlighted that among the varied common challenges that women entrepreneurs encounter in conducting their businesses, low competency in English and the difficulty in communicating in English create an intimidating influence on their performance and progress. Further, it was observed that the level of English language competency has the power to decide and demarcate the extent women entrepreneurs can advance their businesses and, most specifically, access to the export market and the networking opportunities is decided based on their English language competency level and communication skills.

The perceived relationship between English and the empowerment of women entrepreneurs is another vital finding conveyed through the analysis. Accordingly, the participants held the common opinion that the English language has the power to lead them towards empowerment. Further, affirming Bony Norton's theoretical perception that second language learning creates a direct impact on the identity formation of individuals, the participants mentioned that learning English can empower them while restructuring their identity with value addition and more recognition. While highlighting the deficiency of English language training programmes to enhance their English language skills, the participants mentioned the necessity of an English language programme tailored to meet their specific English language needs.

Keywords: *Women entrepreneurs, English language competency, Specific English language skills, English language programme, empowerment.*

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AI-Supported Curriculum Design and Academic Advising: Educators' Perspectives on Personalized Learning Pathways and Skills Forecasting in Sri Lankan State Universities

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Abstract

Artificial Intelligence (AI) is progressively shaping curriculum development and academic advising in higher education worldwide. In Sri Lankan state universities, educators are pivotal for determining teaching and learning strategies and serve as vital stakeholders in the integration of AI technology. This research examines educators' perspectives of AI-assisted curriculum design, individualized learning pathways, and skills forecasting within these institutions. This qualitative study examines the perceptions of educators at Sri Lankan state universities concerning the use of Artificial Intelligence (AI) in curriculum design, academic advising, and personalized learning, drawing on critical findings generated through thematic analysis of semi-structured interviews conducted with 20 purposively selected educators across three institutions. Educators considered AI as an instrumental resource that may improve adaptable curriculum design, synchronize academic programs with job market demands, and provide prompt, individualized student assistance. They highlighted AI's capacity of suggesting appropriate curriculum modifications. However, additional challenges hamper the effective implementation of AI, which include insufficient faculty competence in AI, poor digital infrastructure—particularly in rural areas—and ethical issues including data privacy, algorithmic bias, and transparency. Participants underscored the need for intentional institutional investment in digital infrastructure, accessible AI tools, and extensive professional development to enable educators to become competent users of AI technology. They also encouraged collaborative participation in the construction of AI systems to guarantee instructional relevance. The study finds that ethically directed, educator-centered AI integration is crucial for enhancing higher education results in Sri Lanka and recommends for longitudinal research to evaluate AI's long-term effects on teaching, student performance, including institutional innovation.

Keywords: *Academic Advising, Artificial Intelligence in Education, Curriculum Design, Educator Perceptions, Sri Lankan Higher Education*

Introduction to the Study

AI is revolutionising education by enabling more flexible and individualised learning opportunities. AI tools assist in personalising education that meets the requirements, preferences, and learning processes of each individual student rather than using a conventional teaching methodology. Education becomes more effective and entertaining when tools like smart tutoring software and adaptive learning systems modify the way knowledge is presented in real time. This shift towards personalised learning promotes better understanding and enhanced learning success, as noted by Bishri (2024). Similar to this, Kaswan, Dhatteval, and Ojha (2024) note that AI benefits students by facilitating self-directed learning and providing teachers useful information to improve their approaches to teaching, which eventually results in more inclusive and student-centered learning environments.

Applications of artificial intelligence (AI) in higher education, including skills forecasting, curriculum modelling, and personalized learning avenues, are transforming the way academic programs are created and student guidance is given (Singh, 2024). As academic advisers and frontline instructors, educators play a crucial role in this change. The effective acceptance and integration of AI technologies in curriculum creation and instruction is greatly influenced by their attitudes, experiences, and preparedness (Zaharuddin, Chen Yu, & Yao, 2024).

Despite systemic issues including high student-to-faculty ratios, insufficient funding, and infrastructure differences between urban and rural campuses, state institutions in Sri Lanka are vital for social mobility and national development (Jayawardena, 2018). The ability of educators to provide timely academic assistance and customized learning experiences is hampered by these issues. In order to match academic programs with changing job market demands, artificial intelligence (AI) supports adaptive curriculum design and empowers educators to predict skills need (Sari, Tumanggor, & Efron, 2024).

Despite the potential advantages, AI integration is still in its infancy at Sri Lankan state universities, and little is known about how educators feel about advising and curriculum systems that employ AI. It is essential to comprehend the viewpoints of educators as their attitudes, skills, and concerns influence the adoption of AI and pedagogical innovation. In order to fill this gap, this research looks at how educators see, use, and deal with AI in curriculum design, personalised learning pathways, and skills forecasts.

The study is guided by the following research question:

- How do Sri Lankan university educators perceive AI adoption in teaching and advising, and what challenges and ethical concerns do they face?

Research objectives

- To examine educators' perceptions of AI integration in curriculum design and academic advising.
- To explore educators' views on the role of AI in facilitating personalized learning pathways and forecasting future skill needs.
- To identify key challenges and ethical concerns faced by educators in adopting AI technologies in higher education.

Methods and Methodology

This qualitative research investigated the perspectives of educators on AI integration at Sri Lankan state universities using semi-structured online interviews conducted via Zoom. Twenty instructors from three state universities were chosen as a purposive sample, covering a range of academic specialties and levels of experience. An interview procedure that looked at important topics such as AI's involvement in curriculum design, individualized learning pathways, skills forecasting, ethical issues, and institutional support served as the guidance for the around 40–45 minute interviews. With the participants' permission, all interviews were audio recorded and verbatim transcribed. A strict adherence to ethical principles was maintained, including informed consent, confidentiality, and the ability to withdraw. The transcripts were thoroughly examined using thematic analysis, which allowed for the discovery of themes and patterns pertaining to the perspectives, challenges, and suggestions of educators on the use of AI in higher education.

Following Braun and Clarke's (2006) methodology, verbatim transcriptions of qualitative data were then thematically analyzed to uncover important themes on the adoption of AI, its educational implications, challenges, and ethical issues.

Research Findings and Discussion**Educators' Perceptions of AI in Curriculum Design and Advising**

Artificial intelligence holds the ability to revolutionize academic guidance and curriculum design, according to most academics. About 78% of respondents stated that by evaluating student performance data and job market developments, AI techniques might greatly improve adaptive curriculum design and provide timely and relevant program modifications. The power of AI to support personalized academic pathways and dynamic course sequencing was highlighted by several participants as a strategy to increase academic achievement and student retention.

Educators recognized AI's data-driven insights as a useful addition to their own educational assessment and valued them. They held the opinion that AI might efficiently detect skill shortages in current curriculum and suggest changes that would

be in line with current educational data and changing business demands. It was believed that these skills were necessary to encourage program design that was both flexible and relevant.

Participants emphasized how AI-powered virtual assistants might provide timely, individualized help on career planning and course selection in academic advising. Particularly during times of high enrolment, these methods were thought to be especially helpful in reducing the difficulties associated with advising that arise from high student-to-faculty ratios.

Support for Personalized Learning Pathways and Skills Forecasting

Educators were very supportive of AI's ability to create individualized pathways to learning that are based on each student's requirements, learning preferences, and academic development. The diverse learner profiles seen in big classrooms were thought to be effectively addressed by adaptive learning systems, which could modify the pace and delivery of the information.

It was also shown how AI can help with skills predicting. In order to assist colleges predict new skill needs and modify their curriculum appropriately, participants highlighted the potential of AI systems that include job market information. It was believed that the relationship was essential to improving graduates' employability in a changing and dynamic environment.

Nevertheless other educators also emphasized the necessity for moderation. They underlined that in order to maintain academic rigor and guarantee contextual relevance, AI-generated suggestions ought to always be balanced against human decision-making, even if they might be advantageous.

Challenges and Ethical Considerations

Despite generally favorable opinions, educators identified a number of challenges to successful AI incorporation. The faculty members' low degree of AI literacy was a major barrier. Many said they were unskilled and uncertain enough to utilize AI technologies efficiently or to understand the data these systems generate. A major obstacle to using AI into academic advising and curriculum design was thought to be this knowledge gap.

Another issue was the lack of infrastructure, especially on campuses that were underfunded or in remote areas. Significant interaction with AI systems was impeded by a number of issues, including inconsistent internet connectivity and inadequate technology.

An important issue was ethical concerns as well. Concerns around algorithmic bias, data privacy, and the openness of AI systems were raised by educators. They were especially concerned that opaque algorithms would provide biased or incorrect suggestions that might harm learners' academic performance. The establishment of

explicit laws and moral standards to protect students' rights and encourage responsible AI usage was thus strongly advocated.

Institutional Support and Professional Development

The need for institutional assistance to successfully use AI in higher education was underlined by all participants. This involves paying for digital infrastructure, making AI technologies accessible, and setting in place extensive professional development initiatives. Building AI literacy, enhancing data interpretation abilities, and increasing understanding of ethical considerations should be the main goals of such training.

The creation of AI systems should also be done collaboratively, according to educators. They emphasized how crucial it is to include academic personnel in the planning and execution phases of AI solutions in order to guarantee that they are pedagogically sound and relevant to their respective learning settings.

Conclusion

The educators at Sri Lankan state universities perceive AI-supported curriculum design, personalized learning pathways, and skills forecasting as revolutionary advancements that could greatly improve the quality and responsiveness of academic advising and curriculum development, according to this study. More flexible, data-driven learning experiences that closely match the demands of the changing job market and students are thought to be made possible by these AI-driven strategies.

However, resolving a number of significant issues is still necessary for fully utilizing AI in higher education. These include the lack of strong ethical governance frameworks, disparities in infrastructure across institutions, and faculty preparedness. Improved AI literacy, access to dependable digital infrastructure, and institutional clarity on data responsibility and ethical behavior are all urgently needed, according to many educators.

Institutional investment must be maintained and intentionally done in order to overcome these challenges. Prioritizing the development of digital infrastructure, guaranteeing fair access to AI tools, and creating extensive professional development programs are all necessary for universities to give educators the tools they need to successfully integrate and co-develop AI technologies in educational settings. Furthermore, building confidence in AI-driven educational systems, protecting student privacy, and reducing algorithmic bias all depend on the creation of clear ethical standards and data governance procedures.

Sri Lankan state universities may lead the way in the use of AI in higher education that is human-centered and contextually appropriate by prioritizing the professional insights of educators and encouraging a cooperative approach to AI

integration. The alignment of academic programs with the ever-changing needs of the job market is strengthened by this method, which also improves teaching and learning outcomes. To assess the long-term effects of AI integration on teaching methods, student performance, and institutional effectiveness, future studies should use longitudinal designs. This will help shape scalable, moral, and sustainable AI strategies for the university sector.

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