Factors Influencing Senior Secondary Students' Selection of the Information and Communication Technology (ICT) Subject

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ABSTRACT

Information and Communication Technology (ICT) plays a highly significant role in today's technological world. Accordingly, through successive educational reforms implemented in Sri Lanka, ICT has been introduced and implemented as a school subject. As one of the optional subjects offered in Grade 10, various factors influence students' selection of ICT. In recent years, the selection rate of ICT has been observed to be very low among Tamil-medium provincial schools in the Colombo South Education Zone. Against this background, the present study was conducted with the objective of identifying the factors influencing students' selection of ICT. This study followed a descriptive survey design and adopted a mixed-method approach. The study population consisted of 200 senior secondary students studying in four selected schools, and data were collected from all of them. In addition, four principals, four deputy principals, seven subject teachers, and twenty parents were selected as the sample. Quantitative data collected through questionnaires were analyzed using descriptive statistical methods, while qualitative data obtained through interviews and discussions were analyzed using thematic analysis. The findings revealed that among student-related factors influencing ICT subject selection, personal interest, the need for future career opportunities, parental guidance, prior knowledge of ICT from Grades 6–9, social recognition, proficiency in English, and understanding of ICT subject content (M = 3.5–4.5) had a very high level of influence. Among school resource-related factors, laboratory facilities (M = 3.9, SD = 0.85) had a very high level of influence. Among teacher-related factors, the suitability of teaching methods, individual attention given by the teacher, immediate correction of exercises, encouragement during learning difficulties, and preparation for examinations (M = 3.4–4.5) had a high level of influence. Among parent-related factors, parental encouragement and the provision of guidebooks (M = 3.5–4.4) had a very high level of influence. The study further suggests that providing appropriate awareness and guidance to students and parents regarding the importance of ICT in contemporary life and the world of work, as well as information about future educational pathways, can increase students' interest in selecting the ICT subject.

Keywords: ICT subject, senior secondary students, subject selection, influencing factors.

INTRODUCTION

The contemporary world is increasingly characterized by rapid advancements in information and communication technologies. As noted by Valverde et al. (2020), today's modern world is fundamentally shaped by information technology. Technology is a global imperative because of its contributions to human existence and has improved global socioeconomic relations (Wedikandage & Zahir, 2024). In the 21st century, globalization and advancements in information technology have brought about significant changes in education (Kirubalan & Sivananthan, 2026).

In response to these global transformations, educational systems are required to equip students not only with traditional literacy and numeracy skills but also with competencies in information and communication technology (ICT). ICT knowledge and skills are increasingly recognized as essential for participation in the knowledge economy and for addressing contemporary social and economic challenges. Consequently, the integration of information and communication technology in the education sector is important (Vijayatheepan, 2025).

Providing adequate ICT knowledge and skills at different levels of education is crucial to enabling students to contribute meaningfully to national development. In Sri Lanka, educational reforms implemented periodically have emphasized the incorporation of ICT into the national curriculum. As part of these reforms, ICT was introduced as a subject across secondary and tertiary education levels. Although Fullan (1993) discusses educational change in a broader reform context, curriculum innovation in Sri Lanka similarly reflects efforts to modernize education through ICT integration.

Within this reform trajectory, General Information Technology (GIT) and Information and Communication Technology (ICT) were introduced at the General Certificate of Education Advanced Level (GCE A/L) in 2004 (Nel Gunadasha, 2019). In 2006, ICT was introduced as an optional subject for Grades 10 and 11. Subsequently, in 2016, ICT was incorporated into the curriculum for Grades 6–9. To promote equitable access to technological knowledge regardless of students' socioeconomic background, ICT was made a compulsory subject at the junior secondary level and an elective subject at the senior secondary level.

Despite these policy initiatives, recent evidence from Tamil-medium provincial schools in the Colombo South Educational Zone indicates a relatively low rate of ICT subject selection among senior secondary students. Specifically, only 28% of students opted for ICT-related subjects, while 72% selected alternative subjects. This trend raises important concerns regarding the effectiveness of ICT integration policies and the factors influencing students' subject choices.

In this background, the present study aims to identify the factors influencing senior secondary students' selection of ICT subjects in Tamil-medium provincial schools in the Colombo South Educational Zone.

The study was conducted based on the following objectives:

1. To identify student-related factors influencing senior secondary students' choice of ICT subjects.
2. To identify school physical resource-related factors influencing senior secondary students' choice of ICT subjects.
3. To investigate teacher-related factors influencing senior secondary students' choice of ICT subjects.
4. To identify parent-related factors influencing senior secondary students' choice of ICT subjects.

LITERATURE REVIEW

ICT helps students develop professional and creative skills and is essential for students to acquire computer literacy, data analysis and programming skills to prepare them for 21st century jobs (UNESCO, 2011). Students who use ICT also acquire better problem-solving skills and teamwork skills (DECD, 2015). Furthermore, students with basic knowledge of ICT have better chances of future employment opportunities (World Bank, 2020). However, lack of basic facilities such as computers, internet, and laptops are major barriers to ICT learning (Kumar & Singh, 2022).

Various factors influence students' choice of subjects. Kamalakumar, (2015) has revealed that students choose subjects with easy content to achieve better results. The influence of parents on children's learning achievement is widely recognized as a fundamental factor in educational development (Luxmanathasan & Sivananthan, 2026).

Therefore, students are more likely to choose ICT subjects if they have the opportunity to listen to someone from their family (Kamalakumar, 2021). The relationship between teachers and students, classroom environment and parents of students play an important role in students' choice of technology subjects (Sivananthan et al., 2024). Teachers' ICT subject teaching skills and their encouragement play an important role in students' choice of subjects (Johnson & Cotteer, 2018). Also, the socio-economic status of the student influences the choice of ICT subjects (Subodhini, 2018). In addition, to encourage students' choice of ICT subjects, they should be encouraged from grade 6 and proper guidance and advice should be provided during grade 10 subject selection (Radhika, 2022).

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RESEARCH METHODOLOGY

This study was conducted based on Tamil medium provincial schools in the Colombo South Educational Zone in the Colombo District. Since this study aims to identify and describe the factors that influence the choice of ICT subject by senior secondary students, it is a descriptive research design, using both quantitative and qualitative data, and a mixed research approach.

200 students studying in the senior secondary section of the 4 selected schools were taken as the study population and data were obtained from all of them. In addition, 4 principals, 4 vice principals, 7 subject teachers and 20 parents were selected as the sample. Questionnaires were used to obtain data from students who chose ICT subject and students who did not choose ICT subject, interviews were used to obtain data from the principal, vice principal and subject teachers, and discussions were used to obtain data from parents. Quantitative data were analyzed using descriptive statistics and qualitative data were analyzed using thematic analysis.

Data Analysis

The data obtained from the questionnaires administered to students who chose and did not choose the ICT subject have been analyzed separately.

Analysis of data obtained from students who chose the ICT subject

The data obtained on Likert scale (5 - very high, 1 - very low) regarding the factors influencing the choice of ICT subject among senior secondary students who chose the ICT subject have been analyzed and are presented in the sub-headings below.

Table 1: Student-related factors influencing the choice of ICT subject

Variable	**M**	**S.D**
Personal interest	4.3	0.94
Parental guidance	3.7	0.86
Pre-Knowledge of the 6th-9th grade subjects	3.7	0.81
Awareness seminar	2.5	1.13
Senior student guidance	2.7	0.92
Peer motivation	3.1	1.17
Environmental factors	3.3	1.07
Social networking	3.4	1.28
Future career opportunities	4.4	0.86
Social acceptance	3.6	1.21
English proficiency	3.6	0.95
Personal preference	3.8	0.78

According to the data presented in the table, several personal and academic factors demonstrated a high level of influence on students' choice of the ICT subject. These included future career needs (M = 4.4, SD = 0.86) and personal interest (M = 4.3, SD = 0.94), which recorded the highest mean scores. In addition, understanding of

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subjects studied in Grades 6–9 (M = 3.8, SD = 0.78), parental guidance (M = 3.7, SD = 0.86), prior knowledge gained from Grades 6–9 (M = 3.7, SD = 0.81), social recognition (M = 3.6, SD = 2.21), and English proficiency (M = 3.6, SD = 0.95) were also identified as influential factors in subject selection.

In contrast, awareness (M = 2.5, SD = 1.13) and guidance from senior students (M = 2.7, SD = 0.97) showed comparatively lower mean values. Peer motivation (M = 3.1, SD = 1.17), the impact of environmental factors (M = 3.3, SD = 1.07), and social media influence (M = 3.4, SD = 1.28) reflected moderate but relatively limited influence. Overall, the findings suggest that intrinsic motivation and career-oriented considerations play a more substantial role in the selection of ICT than external or social influences.

Table 2: School physical resource- factors influencing the choice of ICT subject

Variable	**M**	**S.D**
Computer facility	3.2	0.85
Internet facility	2.7	0.99
Laboratory facility	3.9	0.85
Multimedia projector usage	2.7	1.17
Printer usage	2.9	1.06
Whiteboard usage	3.2	1.29

According to the data presented in the table, laboratory facilities had the greatest influence on students' choice of the ICT subject (M = 3.9, SD = 0.85). In comparison, other instructional and technological resources demonstrated relatively lower levels of influence. These included computer facilities (M = 3.2, SD = 0.85), whiteboard usage (M = 3.2, SD = 1.29), printer usage (M = 2.9, SD = 1.06), internet facilities (M = 2.7, SD = 0.99), and multimedia projector usage (M = 2.7, SD = 1.17). These findings indicate that while laboratory infrastructure plays a significant role in shaping students' decisions to select ICT, the influence of other supportive facilities appears to be comparatively moderate to low.

Table 3: Teacher - related factors influencing the choice of ICT subject

Variable	**M**	**S.D**
Relevance of the teacher's teaching method	3.8	0.96
Personal attention from the teacher	4.0	1.03
Immediate correction of the exercise	3.8	1.02
Encouragement when the student is struggling	3.9	1.12
Preparation for the exam	4.3	0.79

According to the data presented in the table, several teacher-related factors exerted a strong influence on students' choice of the ICT subject. Among these, preparation for examinations recorded the highest mean score (M = 4.3, SD = 0.79), indicating its substantial impact. Personal attention from the teacher (M = 4.0, SD = 1.03) and encouragement provided when students encountered difficulties (M = 3.9, SD = 1.12) were also identified as highly influential factors. In addition, the relevance of the teacher's teaching methods (M = 3.8, SD = 0.96) and the immediate correction of exercises (M = 3.8, SD = 1.02) demonstrated considerable influence. Overall, the findings highlight the significant role of effective pedagogical practices and supportive teacher–student interactions in shaping students' decisions to select the ICT subject.

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Table 4: Parent-related factors influencing the choice of ICT subject

Variable	M	S.D
Parental encouragement	3.5	1.16
Providing computer facilities	2.7	1.29
Procuring textbooks	3.7	1.15
Special classes	2.3	1.51

According to the data presented in the table, parental encouragement (M = 3.5, SD = 1.16) and the provision of textbooks (M = 3.7, SD = 1.15) exerted a relatively strong influence on students' choice of the ICT subject. In contrast, other forms of parental support showed comparatively lower levels of influence. These included the provision of computer facilities at home (M = 2.7, SD = 1.29) and the arrangement of special classes (M = 2.3, SD = 1.51). Overall, the findings suggest that motivational and academic support from parents plays a more significant role in influencing ICT subject selection than material or supplementary instructional support.

Analysis of data obtained from students who did not choose the ICT subject

It was found that 82% of the students knew the importance of ICT and 89% of the students knew that ICT is important for future career opportunities. However, they did not choose ICT. For this, 55% of the students stated that ICT is a difficult subject. 50% of the students felt that they would not be able to get an A-level pass in this subject in the G.C.E. Ordinary Examination and 32% of the students expressed their concerns that they would prefer other subjects instead of ICT which had an adverse effect on their choice of ICT.

Regarding the lack of physical facilities for the subject of ICT in the school, 40% of the students expressed their frustrations that they did not receive adequate awareness about ICT from the school, 80% of the students expressed their frustrations that they did not receive sufficient guidance from the teacher while choosing the subject, and 61% of the students expressed their frustrations that they did not receive sufficient guidance from the teacher while choosing the subject, which has had an adverse impact on their choice of ICT subject.

Analysis of qualitative data

The data obtained from the principal, vice principal, teachers and parents through interviews and discussions were analyzed thematically and the results obtained from it are presented below.

The lack of computer facilities, internet facilities, study room facilities and resource persons in the school have had an adverse impact on the choice of ICT subject by the students. In addition, the fact that the parents live in very difficult circumstances and are low-income earners have had an adverse impact on the choice of ICT subject by the students. It has also been found that the students are dependent only on school education and have had an adverse impact on the choice of ICT subject.

CONCLUSIONS AND DISCUSSION

The findings of the study indicate that several interrelated factors influence senior secondary students' choice of the ICT subject. Among student-related factors, personal interest, future career needs, parental guidance, prior knowledge and understanding of ICT subjects studied in Grades 6–9, social recognition, and English proficiency demonstrated the highest levels of influence (M = 3.5–4.5). These results suggest that intrinsic motivation, academic preparedness, and long-term career aspirations play a decisive role in subject selection.

With regard to school-related factors, laboratory facilities (M = 3.9, SD = 0.85) emerged as the most influential institutional factor. In comparison, the availability of computer facilities, internet access, multimedia projector use, printer use, and smart board use reflected moderate levels of influence (M = 2.5–3.4). This indicates that while general technological infrastructure contributes to students' decisions, well-equipped laboratory environments are particularly significant.

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Teacher-related factors also exerted a strong influence on ICT subject choice. The relevance of teaching methods, personal attention provided by teachers, immediate correction of exercises, encouragement during learning difficulties, and effective examination preparation (M = 3.4–4.5) were identified as highly influential. These findings highlight the critical role of pedagogical quality and supportive teacher–student interactions. Regarding parent-related factors, motivational and academic support—such as parental encouragement and the purchase of instructional materials (M = 3.5–4.4)—demonstrated relatively high influence. In contrast, the provision of computer facilities and enrollment in special classes (M = 2.4–3.5) showed comparatively moderate influence.

Overall, the study concludes that students' ICT subject selection is shaped more strongly by personal motivation, career orientation, teacher support, and parental encouragement than by material or infrastructural provisions alone.

The conclusions of the present study are consistent with existing literature on student motivation and subject selection. Research indicates that extrinsic motivational factors—such as tangible rewards, competitive environments, and parental involvement—significantly enhance student engagement and influence their choice of academic subjects (Athirathan, 2024). Similarly, prior studies emphasize that to raise achievement, schools and classrooms must be resourceful, teacher-student relationships must be effective (Sivananthan & Wedikandage, 2023).

The findings of this study align with these perspectives, demonstrating that both motivational factors and supportive educational contexts play a substantial role in shaping students' decisions to select ICT as a subject. In particular, the influence of parental encouragement, teacher support, and institutional facilities identified in this study reinforces the argument that subject choice is not solely an individual decision but is shaped by a broader network of social, pedagogical, and environmental factors.

The findings reveal several significant barriers influencing students' decisions not to select ICT as a subject. A majority of respondents indicated that they perceived ICT as a difficult subject (55%), while 50% expressed concern that they would be unable to obtain a pass at the G.C.E. Ordinary Level examination. Additionally, 32% reported that they had not received sufficient awareness or guidance about the subject from their school. Overall, an average of 70% of students expressed concerns related to these factors, which collectively exerted an adverse influence on their decision not to choose ICT. The results further indicate that inadequate physical resources within schools and the low socio-economic status of parents negatively affected students' subject selection.

These findings are consistent with the study conducted by Kumar & Singh (2022), which concluded that the lack of essential facilities such as computers, internet access, and laptops constitutes a major obstacle to ICT learning. Similarly, the present study affirms that insufficient physical resources within schools significantly discourage students from selecting ICT. Furthermore, the findings align with Subothini (2018), who reported that students' socio-economic background plays a critical role in shaping their choice of secondary school subjects. In line with this, the current study demonstrates that the low economic status of parents has an adverse effect on students' decisions regarding ICT subject selection. Overall, the discussion highlights that both structural limitations and socio-economic disparities remain key challenges influencing ICT subject uptake.

Suggestions

To enhance students' interest in and selection of the ICT subject, it is recommended that systematic awareness programs be conducted for both students and parents, emphasizing the importance of ICT in modern society, the global labor market, and future educational pathways. Strengthening students' understanding of the relevance of ICT to higher education and career advancement may positively influence their subject preferences.

Furthermore, the rate of ICT subject selection could be improved by ensuring that instruction from Grades 6 to 9 incorporates clear explanations, practical applications, and interactive learning experiences that build students' confidence and competence. Addressing the shortage of physical and instructional resources related to ICT education is also essential; therefore, schools should seek support from charitable organizations and community stakeholders where necessary. In addition, school principals should implement appropriate measures to ensure that ICT teachers receive continuous professional development, training, and pedagogical guidance to enhance

instructional quality. Collectively, these strategies may contribute to increasing student engagement and participation in the ICT subject.

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