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Disclaimers
The views expressed in this study are solely those of the authors and do not necessarily reflect the views of Sida, ADB, CDRI, or MoEYS. Any unintentional mistakes or errors are the responsibility of the authors alone. Corresponding author: Chea Phal, phalchea@cdri.org.kh

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Table of contents

List of figures and tables

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Abbreviations

ADB	Asian Development Bank
CDRI	Cambodia Development Resource Institute
DoPo	Department of Policy
FGDs	Focus Group Discussions
MoEYS	Ministry of Education, Youth and Sport
OECD	Organisation for Economic Co-operation and Development
SDGs	Sustainable Development Goals
Sida	Swedish International Development Cooperation Agency
UNESCO	United Nations Educational, Scientific and Cultural Organisation

Executive summary

The global emphasis on addressing gender disparities in education has highlighted the importance of equitable academic achievement for policymakers, scholars, and the public. The Sustainable Development Goals (SDGs) have incorporated gender equity, emphasising the ongoing challenge of ensuring equal access to quality education worldwide. In Cambodia, traditionally a male-dominated society, a notable shift has been observed: female students are now surpassing their male counterparts in school enrolment and academic performance. This reversal has sparked significant public interest, prompting this research to investigate the underlying reasons for gender disparities in academic success. The study aims to identify the factors influencing students' academic achievements overall and to explore the specific factors contributing to the unequal academic success between male and female students.

To achieve these objectives, the study employed a mixed-method approach, adopting a convergent parallel mixed-methods design. This involved the simultaneous collection and comparison of qualitative and quantitative data to identify notable patterns. In the qualitative strand, interviews were conducted with school directors and teachers, and focus group discussions (FGDs) were held with students. The quantitative strand involved surveys administered to students, teachers and school directors at the sampled schools. The qualitative data were analysed using thematic coding, deriving themes from both the literature review and emergent patterns during the coding process. Quantitative data were analysed using descriptive statistics. Additionally, a validation workshop held in October 2023, involving 36 teachers and 20 school principals and deputy principals, provided a platform to present preliminary findings, solicit feedback, and validate the results and policy recommendations.

The study revealed the multi-faceted factors shaping students' academic achievements from the perspectives of the participants. Individual student attributes, such as effective study habits, academic dedication, and regular attendance, emerged as crucial determinants of academic performance. However, these individual factors were intricately linked with familial, peer, and societal influences. Notably, students with poor study habits and disciplinary issues often came from socioeconomically disadvantaged backgrounds where parental oversight was minimal, granting children greater autonomy and freedom. Financial constraints and limited emotional support within low-income households contributed to absenteeism and a lack of commitment among students, while household responsibilities impeded their academic engagement, resulting in subpar performance. Furthermore, inadequacies in instructional delivery and extra-curricular support within school settings exacerbated these challenges. Some teachers, constrained by time, prioritised content delivery over practical exercises, necessitating supplementary private tuition—a financial burden for economically marginalised families. Additionally, the lack of strict enforcement of disciplinary measures enabled tardiness and absenteeism among students, compounded by educators' dual commitments to private tutoring. The promotion of underperforming students to subsequent grade levels exacerbated the academic attainment gap, as students lacking foundational knowledge struggled with their lessons. Peer influence and technological distractions also significantly affected student learning.

In exploring the superior academic performance of female students relative to their male counterparts, similar patterns emerged. However, a key distinction is that male students' behaviours were more easily influenced by family, peers, school, and societal expectations. For instance, some male students engaged in heavy economic activities, which exhausted them and hindered their learning. Boys were also more likely to engage in social vices and spend

substantial time on sports activities that were not part of school extra-curricular programs, leading to school tardiness and absenteeism.

Based on these findings, the study suggests several policy recommendations to mitigate gender disparities in academic achievements. First, proactive involvement from parents, local authorities, and schools is imperative to counteract negative societal and peer influences, particularly affecting boys. Mitigating the availability and promotion of substances like alcohol and caffeinated beverages in close proximity to schools requires joint efforts among stakeholders. Second, while acknowledging the benefits of technology in education, schools must develop mechanisms to monitor and direct students' technological engagement towards constructive learning and take measures to restrict non-educational usage. Third, expanding sports-related extra-curricular activities can diminish the likelihood of unsupervised activities that lead to unintended adverse outcomes. Initiatives to establish sports clubs, organise inter-school competitions and promote structured sports programs can harmonise academic and athletic endeavours, fostering holistic development. Fourth, ensuring consistent enforcement of discipline and heightened accountability within schools is important to keep students focused on their academic obligations and minimise dropout rates. This can be done by empowering school disciplinary committees and enhancing communication between schools and parents concerning attendance and conduct. Last, addressing financial constraints through need-based scholarships and support services is critical, especially for boys compelled to engage in labour to support their families. Providing access to tutoring and study groups for underperforming students can help bridge academic gaps and promote equitable educational outcomes.

In conclusion, addressing the gender gap in academic performance requires a comprehensive approach that involves parents, educators, and policymakers. By implementing targeted policies and practices, Cambodia can continue to enhance educational outcomes for all students, ensuring that both boys and girls have equal opportunities to succeed academically.

1. Introduction

The gender gap in achievement, a focal point in educational research, has garnered attention not only within academic circles but also in political and economic contexts. This disparity, reflecting differences in academic performance between male and female students, is of global significance, highlighted by UNESCO's incorporation of gender equality into the framework of sustainable development goals (UNESCO 2015). SDG Target 4.5 clearly states that "By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples, and children in vulnerable situations" (UNESCO 2015, 73). The evolution of this discourse has shifted from a mere focus on enrolment rates to a nuanced examination of outcomes, emphasising specific educational levels and academic accomplishments. Understanding the gender gap in learning requires recognition of its diverse dimensions. This multi-faceted issue encompasses disparities in various educational outcomes, ranging from enrolment rates to academic achievements. A comprehensive understanding of these dimensions is essential for the development of effective strategies to address this complex challenge. The Sustainable Development Goal 4 (SDG 4) underscores the global commitment to ensuring equal access to quality education for all genders. This commitment reinforces the idea that education is a fundamental right accessible to everyone, regardless of gender.

1.1. Overview of trends in global gender achievement gaps

Gender differences in academic performance have been a subject of extensive research and debate, with various studies shedding light on the evolving dynamics in this field. The 1990s marked a turning point when this issue gained significant media and political attention (Smith 2003). Since then, numerous studies have been conducted to explore these gender disparities in academic achievement across different subjects and countries. A noteworthy contribution to the understanding of gender differences in academic performance was made by Lietz (2006) through a comprehensive meta-analysis of large-scale studies conducted between 1970 and 2002. Focusing on reading achievement at the secondary school level, the study revealed that gender differences were not a matter of chance. On average, female secondary students outperformed their male counterparts by approximately 0.19 standard deviation units.

The discourse surrounding the reversal of the gender gap in learning performance currently centres on the question of whether male students truly exhibit lower academic performance than their female counterparts across levels and fields of education (Driessen and van Langen 2013; Meinck and Brese 2019; Takeuchi 2022; Workman and Heyder 2020). Building on this, Reilly, Neumann, and Andrews (2019) examined three decades of US student achievement in reading and writing using data from the National Assessment of Educational Progress. The findings confirmed a consistent pattern of girls outperforming boys in reading across all grades, with the gender gap often widening in high school compared to primary school. However, the global perspective on gender differences in academic performance presents a more nuanced picture. The OECD study conducted by Borgonovi, Ferrara, and Maghnouj (2018) focused on Nordic countries and revealed intriguing trends. While boys initially received higher math scores in TIMSS assessments over a 20-year period (1995-2015), the gender gap was narrowing. Notably, in Finland and Germany, girls had already surpassed boys in math performance by 2015.

In recent years, in many developed and some developing countries, girls tend to outperform their male counterparts, not only in language but also in mathematics and science. In all 81 countries and economies that participated in PISA 2022, girls outperformed boys in reading, with 48 and 25 countries showing girls performing better than boys in science and mathematics subjects,

respectively (OECD 2023). This reversed outcome has sparked concern in several countries as it challenges traditional gender-based academic performance expectations (Workman and Heyder 2020). As illustrated in Figure 1, in all Asian countries that participated in PISA 2022, girls did better than boys in reading. In most countries, girls also outperformed boys in science as well. In Cambodia, female students scored higher than male students in all three subjects, although the gap in mathematics is relatively small (OECD 2023).

Figure 1: Students' learning achievement and attitude by gender in Asian countries

Country	Math			Reading			Science		
	Female	Male	Gap	Female	Male	Gap	Female	Male	Gap
Brunei Darussalam	446	435	11.0	445	411	33	450	439	12
Cambodia	330	325	4.9	331	310	21	345	336	9
Chinese Taipei	534	533	1.0	520	489	31	528	525	2
Hong Kong	541	551	-9.5	516	494	22	524	525	-1
Indonesia	383	375	8.5	384	361	23	398	392	6
Japan	530	540	-9.6	523	507	16	545	548	-3
Korea	528	534	-6.3	534	503	32	532	530	2
Macao	544	560	-15.5	518	503	14	542	544	-2
Malaysia	415	404	11.2	405	373	32	424	410	14
Moldova	414	417	-3.4	428	398	30	422	415	7
Mongolia	427	421	5.6	390	366	24	419	404	15
Philippines	361	347	14.1	363	328	34	362	348	15
Qatar	417	407	10.1	437	394	43	441	417	24
Saudi Arabia	387	391	-3.5	398	367	31	398	384	14
Singapore	568	580	-11.3	553	532	20	558	564	-6
Thailand	417	412	5.8	410	382	28	434	424	10
United Arab Emirates	437	431	5.6	442	398	43	443	427	16
Vietnam	464	474	-10.6	470	452	18	469	475	-6

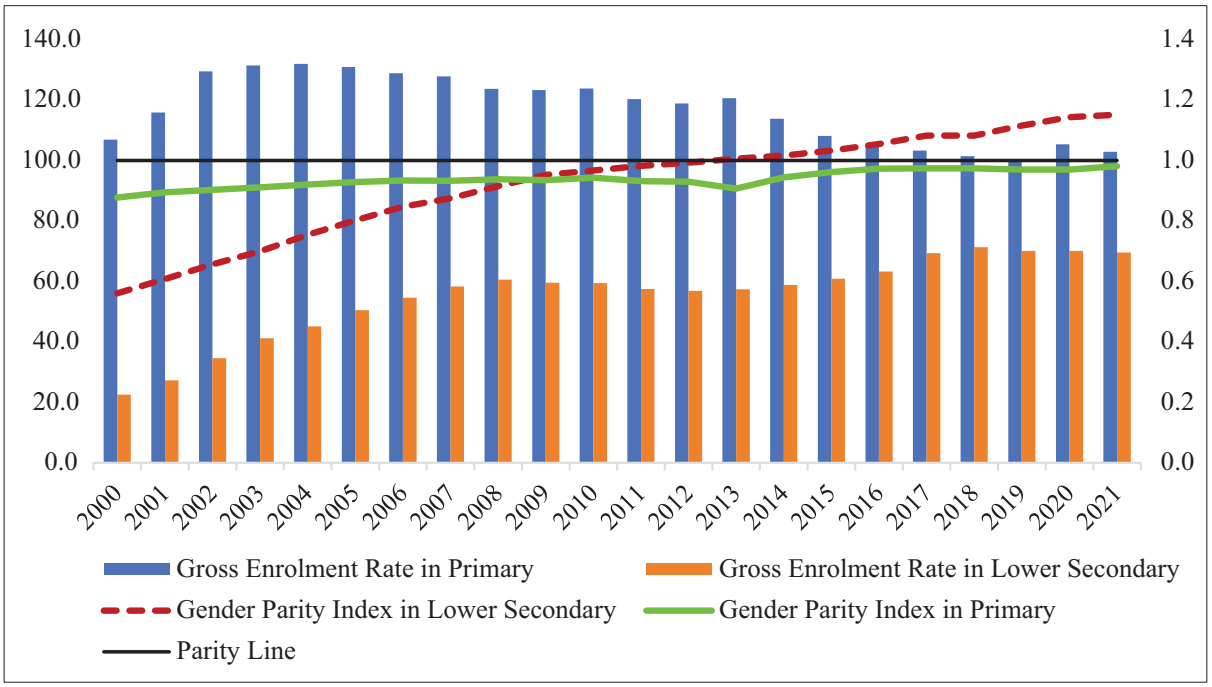
Source: Prepared by the authors based on PISA 2022

1.2. Cambodian context

Although the COVID-19 pandemic caused a temporary setback in educational progress, Cambodia has made significant strides in improving educational access, particularly at the basic level. Within basic education, girls have notably benefited from the expanded access, leading to a significant increase in the gender parity index. In fact, girls' enrolment in lower secondary schools has exceeded that of boys since 2013. Notably, Cambodian girls not only outnumber boys in terms of enrolment but also outperform them academically (Chea, Tek, and Nok 2023).

In upper secondary education, one of the noticeable education reforms is the National Baccalaureate II Examination reform, aiming to eliminate cheating. The reform efforts led to a significant drop in the passing rate of the first exam, from nearly 87 percent to just 25.7 percent. This change received widespread support and marked an early success of the Ministry of Education, Youth, and Sport's (MoEYS) reform initiatives. The poll showed overwhelming support for the Ministry's decision - the first tangible result of the Ministry's education reform efforts (Everett and Kaing 2014).

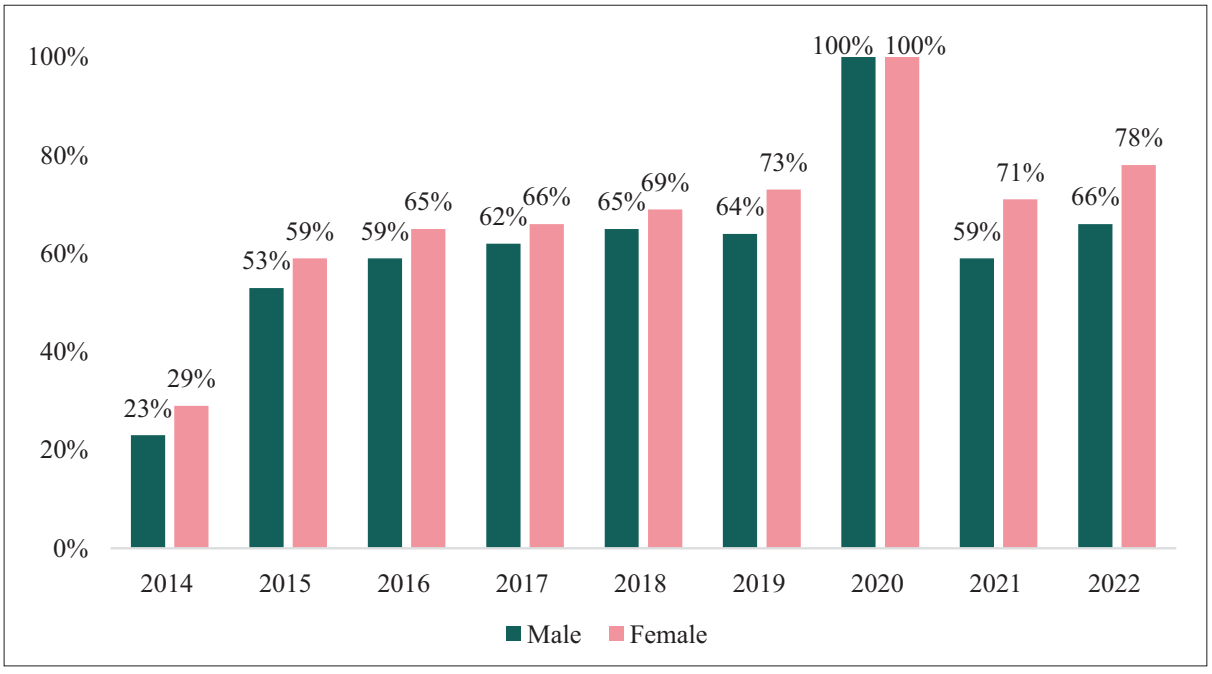
Figure 2: Gross enrolment and gender parity in primary and lower secondary education



Source: Chea, Tek, and Nok (2023, 1)

As seen in Figure 3, the pass rate has increased year by year after 2015. In the 2021-2022 academic year, 125,739 high school students participated in the high school leaving examination, with 70 percent successfully passing. This represented a notable increase compared to previous years, reaching 72.33 percent. Importantly, female students made up the majority of successful candidates, accounting for 57.74 percent, thanks to the government's commitment to gender equality. During this period, female students achieved higher pass rates (77.52 percent) than their male counterparts (66.28 percent). These findings align with the global and regional trend, as girls have consistently outperformed boys in reading and science (OECD 2023).

Figure 3: Pass rates by gender and year between 2014 and 2022



Source: Statistics from the MoEYS

Nonetheless, an increasingly pressing concern in Cambodia revolves around the gender gap in test scores. As depicted in the figure above, female students have consistently outperformed their male counterparts since 2014, coinciding with the year of examination reform. However, this shift in the gender gap in learning received limited attention at that time. The matter gained greater prominence when Prime Minister Hun Sen's inquiry into the issue. The inquiry sought potential solutions and underlined the necessity of comprehending the underlying factors behind these disparities before crafting an effective strategy to address them.

1.3. Objectives of study

There are several studies that explore gender disparities in academic performance in Cambodia. In the past, studies tend to suggest that female students have worse learning outcomes, particularly in mathematics (Chea and Ogawa 2020). However, recent literature indicates the opposite, that girls are now doing better than boys, not only in Khmer but also in mathematics and science (Chea, Tek, and Nok 2023; Marshall 2022). Based on national and international learning assessments, the reversal of the gender gap has become prominent. With this backdrop, this study intends to answer the following research questions.

1. What are the factors that influence students learning achievement in Cambodian upper secondary schools?
2. What are the factors that contribute to the reversal of the gender gap in learning between male and female students based on the perceptions of students, teachers and school directors?

2. Literature review

There are many factors that can affect students' academic achievement. These factors can be categorised as 1) personal: students' cognitive competence, skills, and knowledge; non-cognitive competence such as motivation, personality, attitude, effort, and discipline; 2) structural: teaching and teachers, schools, and family; 3) social: social norms, culture, politics, and economic factors (Kahu 2013).

Gender differences can also be explained through this framework. In fact, as shown in a study in the Netherlands (Driessen and van Langen 2013), many unobserved facets of academic performance disparity between male and female students, which favours the latter, cannot be attributed solely to variations in competence differences as measured by standardised test results. However, it can be partly accounted for by the observation that female students show a greater degree of effort in their academic pursuits in comparison to their male counterparts. It is evident that there is a significant gender disparity in non-cognitive competencies, such as work attitude and school behaviour, which suggests boys are at a disadvantage compared to girls.

A study conducted by Gu and Jean Yeung (2021) on Chinese adolescent students using the China Family Panel Studies (CFPS) survey, panel data from 2010 to 2014, also found that non-cognitive competencies also played a major role in the gender difference. The study showed that girls tend to have better self-discipline and put more effort into learning. However, in addition to these, the study also revealed that students' early academic outcomes and family factors, such as parents' expectations, support, and monitoring, also influenced the gender difference in favour of girls. In addition, it is noteworthy that the difference is more obvious, as the study showed, in rural areas than in urban areas.

Student attitudes can also be used to explain students' efforts at school. A common explanation is that boys and girls tend to hold different school attitudes. Various studies have indicated

that girls are more motivated and have more positive attitudes toward school compared to boys (Cox 1999; Francis 2002; Warrington, Younger, and Williams 2000). It has been shown that girls spend more time doing homework, are less disruptive in class, and play truant less often. Girls have clearer goals and expectations of themselves and thus are more enthusiastic about learning, while boys tend to take it easier, are not as hard-working, and are more easily distracted (Warrington, Younger, and Williams 2000). This argument is supported by the study by Van Houtte (2004) on senior high school students in Belgium. The study found that boys' culture is less study-oriented than girls' and that this difference can be held responsible for the gender differences in achievement in general schools. Later research (Driessen and van Langen 2013; Gu and Jean Yeung 2021) also supports this finding, showing that girls tend to put more effort into learning than boys.

With regard to the attitude toward competition, no significant differences have been observed between male and female individuals in the ASEAN countries. The prevailing emphasis on a credential- or exam-oriented environment has led to a heightened sense of competition in Singapore. Male students typically display higher confidence levels than their female peers. It has similarly been observed that male students demonstrate a tendency towards overconfidence in learning, mainly when tasked with conducting self-assessment exercises in the field of mathematics (Adamecz-Volgyi et al. 2023). Contrarily, the study further points out that female students showcase a better drive to master tasks and feel more afraid of failure in comparison to their male counterparts, simply meaning that the higher their level of fear about failing an exam, the more likely it is that they will pay close attention in class. This phenomenon stems from the fact that male students utilise technological devices for leisure outside of the educational setting more frequently than their female counterparts (OECD 2019). Therefore, it is true that the decrease in academic achievement among boys is not a distinct phenomenon in Western nations that prioritise gender equality. However, this phenomenon started to manifest in countries where, historically, males used to outperform girls.

3. Methodology

The study aims to achieve the proposed objectives by employing a convergent parallel mixed-methods design (Creswell 2014). Following this design, we collected and analysed both qualitative and quantitative data separately and then compared the results of both sources of data to see if they were consistent or not. While the primary focus of the findings rests on qualitative data, quantitative data are employed to triangulate information derived from interviews and discussions with teachers, school principals, and students. In addition, the study also benefitted from the validation workshop, in which the research team shared the preliminary findings with participating teachers and school principals. Inputs and feedback garnered during group discussions within the workshop complement the data obtained during fieldwork, thereby enriching the research insights.

3.1. Data collection

3.1.1. Qualitative strand

To gather qualitative data, we developed instruments for individual interviews with school directors and pair interviews with teachers, and focused-group discussions (FGD) with students. These instruments include three main components: participant backgrounds, factors influencing academic success, and factors contributing to gender disparity in academic achievement. The design of the latter two components was guided by the literature review and existing knowledge

and experience of the research team, which encompasses various factors, including individual student characteristics, technology usage, peer interaction, family influence, teacher impact, school environment, curriculum, and private tutoring. The research tools underwent extensive discussions and revisions within our research team. Subsequently, all the research tools were translated into the Khmer language and piloted on a group of six students and a pair of teachers at a high school in Phnom Penh.

Our research was guided by the purposive sampling method, which involved establishing specific criteria for recruiting representative participants (Creswell 2014). Using this approach, we aimed to select individuals from diverse groups to ensure data triangulation. However, our primary focus was on students in grades 11 and 12, as they were senior students and approaching national examinations. We visited a total of twenty schools across thirteen provinces and two schools in the city for qualitative data collection. We conducted focused-group discussions (FGDs) with 18 student groups, comprising nine groups from the science track and nine groups from the social science track. Among these learning track groups, we also categorised six students with high academic performance and six students with poor academic performance into two different ability groups. The selection criteria for high- and poor-performing students were based on their learning results from the previous semester. Researchers handpicked the top six and bottom six students from the lists, ensuring an equal representation of three males and three females in each group.

Additionally, we engaged in individual and paired interviews with 11 school principals (nine male) and 17 subject teachers. These teachers, who specialise in Khmer and Math subjects, were selected as representatives from the social science and science streams, respectively. All discussions and interviews were conducted in the Khmer language and typically lasted approximately 1.5 hours. Participants were initially asked about their backgrounds and their perceptions of factors influencing academic success in high school. Subsequently, their awareness of the gender gap in learning outcomes was explored before delving into discussions on factors affecting gender disparities in academic performance. Field notes and voice recorders were utilised to document the conversations. The collected data were transcribed and analysed using NVivo software. A theme-based approach was employed to organise the data into various codes or themes, such as self-study habits, learning commitment, digital usage, peer interaction, school curriculum, private tutoring, and others.

The MoEYS and CDRI organised a workshop on 3-4 October 2023, in Kampong Chhnang province to validate the preliminary findings and seek feedback from the participants. The event was attended by 36 teachers, 20 school principals and deputy principals, all of whom were participants in the study. It also aimed to delve deeper into the factors associated with learning and identify potential causes of learning gaps. The participants engaged in discussions within six groups, with four groups comprised teachers and two groups consisting of school principals and deputy principals. Insights from these discussions were used to enhance the data gathered during the fieldwork.

3.1.2. Quantitative strand

For the quantitative part, we gathered primary data from students, teachers, and school principals. The sampling procedure unfolded in a three-stage process. Initially, we selected 15 provinces from the five regional zones in Cambodia. Subsequently, we sampled 23 schools, from which 51 classes were selected. The classes were selected using systematic random sampling techniques. The data collection was conducted in August 2023 using the Kobo Toolbox platform.

In this study, Grade 11 and 12 students participated in the student survey. Based on class lists from the sampled schools, the number of classes per grade and school was determined. All students present during the visit were selected to participate in the student survey. Additionally, the Math and Khmer teachers of these classes were invited to partake in the teacher survey, while school directors from the 23 schools were invited to complete the school survey.

The student survey instrument encompassed various domains, including individual and household characteristics, economic activities, technology usage, personal learning experiences, as well as attitudes towards learning strategies and motivation. Furthermore, the teacher and school surveys provided insights into teacher demographics such as age, gender, and teaching experience, while the school survey furnished data concerning school resources, location, and characteristics of the school principal.

3.2. Data analysis

The process of qualitative data analysis was guided by the thematic analysis approach, a widely recognised method in qualitative research. This study employed a combination of deductive coding (a top-down strategy) using pre-established themes and sub-theme codes, as well as inductive coding (a bottom-up approach) to uncover new, emerging themes and sub-themes from the data. For the quantitative data, the study employed descriptive statistical techniques, specifically cross-tabulation and data visualisation, including metrics like frequencies, percentages, means, and standard deviations. The focal point of this study is the academic performance of students, which is assessed through their semester test scores in the absence of the national standardised test examinations.

4. Results

4.1. Factors influencing student learning in Cambodia

4.1.1. Student factors

Our findings showed that students themselves are the most common and crucial factor in ensuring academic success. The majority of participants identified a range of individual factors that contribute to academic achievement, such as cultivating good self-study habits, demonstrating personal commitment, exercising self-discipline, building self-confidence, maintaining motivation, preserving mental and physical health, and actively attending and participating in classes.

Various self-study activities were highlighted as catalysts for enhancing students' knowledge and competence throughout their academic journey. These activities include consistent reviews of lessons, completion of exercises, utilisation of social media platforms (e.g., YouTube, Telegram, Facebook pages, or other apps) for accessing additional learning materials, seeking explanations from teachers during break times, and engaging in extra reading from various sources. Some students even emphasised the importance of previewing upcoming lessons prior to classroom instruction. A quote from a high-performing female student illustrates this point.

> ***Students should frequently review lessons and do exercises during free time so they can remember lessons, pay attention to teachers in class, watch extra lessons on YouTube or Apps (e.g. Startup Community) after class, and read books to get general knowledge about the world so that students can have ideas about writing and new ideas. Some poor-performing students have a poor focus on learning. Moreover, students should have a***

> ***learning schedule that allows them to study regularly every day. Students should try to review lessons more often. Poor-performing students who cannot catch up with lessons are sometimes bored with lessons. They have poor concentration and background knowledge. Some students never read books, review lessons, or do exercises at home after learning. Some never take notes of important ideas in class.***

The quote above shows that possessing good self-study habits alone is insufficient without strong self-discipline and personal commitment. High-performing students usually establish and strictly adhere to their learning schedules and can effectively minimise distractions from their social environment. They invest significant effort into their studies during and after classes. For instance, they actively listen to teachers' explanations, take comprehensive notes of lessons, identify their own strengths and weaknesses, and confidently seek help from peers and teachers. In contrast, low-performing students tend to sit at the back of the classroom, disregard teachers' instructions, pay little attention in class, rarely read books, review lessons, or do exercise, focus on digital devices (such as phones), and rely on copying lessons from their peers, indicating poor engagement in the learning process.

However, it is worth noting that at times, students' lack of engagement may stem from the inadequate comprehension of lessons during classes. Some participants highlighted that insufficient background knowledge can hinder students' ability to keep up with their lessons. In this regard, students who struggled academically at primary and secondary levels are more likely to find it challenging to grasp advanced high school lessons, potentially leading to disinterest and boredom in classroom activities. As one male teacher remarked:

> ***One of the main reasons is that they had a poor education since lower secondary school. If the Ministry of Education, Youth and Sports does not address this issue, things will go out of hand, and the quality of high school education will suffer.***

Class attendance also emerged as a significant issue, with students and teachers expressing concerns about students arriving late (often 30 minutes or longer) or skipping classes. Although teachers occasionally advised students to be punctual, verbal reminders proved to be ineffective, and the issue persisted. Being absent due to illness is common and reasonably excusable. However, absence because of skipping classes or from family commitments, for example, to help on the farm or with logging in the forest, can be serious problems and need to be dealt with. A low-performing male student reported:

> ***Boys in rural areas might have to spend time working in rice fields, so they might not have enough time to study at home. After long hours of working, they might get exhausted and might not be interested in reading books or reviewing lessons. Sometimes, they have to be absent from school for a few days to do their work in rice fields. Girls usually do housework and can spare time learning at home and at night.***

Other contributing factors included a loss of motivation and concentration resulting from poor physical and mental health, as highlighted by many students. They attributed their academic struggles to frequent illnesses and compromised mental well-being. Participants frequently cited family-related issues (e.g., parental divorce, financial constraints, lack of emotional support) as factors that diminished their interest in learning and caused them to experience stress or even depression. An 11th-grade girl who shared a rented room with friends in her province candidly revealed, ***"I occasionally fell ill and lacked money, leading to stress and a loss of motivation for learning. My parents give me money, but it is far from enough for my daily expenses and private tutoring fees."*** Some students, not limited to girls, received limited financial assistance

that barely covered their living expenses. Additional factors included having clear future goals that motivated students to focus on their studies and recognising the importance of acquiring foreign language skills (English) to gain global knowledge.

4.1.2. Family factors

The aforementioned factors are evidently crucial in determining students' academic success; however, family-related factors also play a significant role. Many participants acknowledged the importance of parental support in their children's education. Typically, students who received adequate emotional and financial support from their parents were, at least, able to sustain their motivation and focus on learning to some extent. A high-performing female student from a rural school remarked, ***"My parents always encourage me to study hard. They said when they were young, they couldn't study because of the war, so they want me to have a high education and have a good job. They don't want me to do hard work like them."*** The other students in this focus group discussion agreed with her and added that they rarely had to help their parents with farming. Their parents wanted them to only focus on studying.

Conversely, students from disadvantaged families (e.g., those with divorced parents or financial constraints), despite receiving emotional and financial support from their parents, appeared to lose motivation and concentration in their studies, resulting in poor academic performance. A low-performing female student claimed, ***"One of the factors affecting my study performance is issues in my family. It makes me keep thinking about it."***

Others pointed out that without financial resources, they were unable to afford private classes to supplement the insufficient knowledge acquired in public school. A low-performing female student from a rural school stated, ***"Students with divorced parents can face difficulty in learning. They don't have the emotional support from their parents. They also face financial constraints as nowadays students need money to buy learning materials and to pay for the private tutoring classes."*** However, it is worth noting that both teachers and students mentioned that teachers also offered students who could not afford private class fees the opportunity to study without charge. Yet, those students were still reluctant to come, probably because they were embarrassed to be seen accepting charity by their peers. The issue of teachers providing private tutoring to their own students is a problem that has been raised in many previous studies and is also discussed in a later section.

Another problem which results from the family's lack of financial resources is the inability to afford transportation for their children. One student complained, ***"I feel disappointed that I don't have a motorbike like other students, but I strive to motivate myself to study and overcome our current state of poverty."*** The lack of transportation, coupled with poor road conditions and long distances to school, was identified as an additional barrier that hindered students from arriving on time or caused them to skip classes. Sharing motorbikes can be a solution for those who have no means of transportation, but that means those students without motorbikes would have less flexibility and need to skip class when their friend cannot come to school or needs to leave school early. As one student said:

> ***I need to study until 5 pm, but when I come to school with my friends, I have to come back home at 2 pm as he needs to return home at 2 pm; otherwise, it is hard for me to ask someone else for a ride back home.***

Furthermore, some students were compelled or encouraged by their parents to abandon their education and engage in economic activities. For instance, in certain areas near the Thai border, parents took their children to work in Thailand during school vacations, and some of

these children did not subsequently return to school. Some students were involved in various industries, such as factory work, construction, or toiling in rice fields, while others ventured into dense forests to collect rubber or engage in logging activities. Additionally, some individuals sought their income by fishing in the sea, as exemplified by students in Kep province. These activities distracted students' attention from their studies or left them with limited time to concentrate on their education. An 11th-grade Khmer teacher from a rural school pointed out:

> ***Like I said earlier, boys have to help with their parents' work to earn income. Girls also have to help, but they only do work that is not far from home. When they have to travel to forests or remote farms, where they have to sleep there one night or more, only boys will go. They don't have time to learn when they travel to work.***

In some cases, even when parents did not force or motivate their children to engage in economic activities, there were still adverse effects on educational outcomes. Parents were normally so busy with their work to earn income that they failed to monitor their children's behaviour or activities and provide discipline. Some schools attempted to contact parents to report on students' learning behaviour and performance. Unfortunately, communication was often disrupted because of parents' sole focus on their work, neglecting their responsibility for their children's education. Some parents worked in remote areas (e.g., forests or foreign countries), which caused them to have little time to monitor their children's learning activities or communicate with schools. Sometimes, students also provided fake contacts for their parents – to create disconnections between the school and parents. An 11th-grade math teacher from a rural school teacher remarked:

> ***This is a rural area. Most parents are farmers and some go to the forest to do logging. So they have little time to monitor their children's studies. Not many parents attend school meetings. I would say about 10 out of 100 parents would join our meetings when invited. So the school doesn't have a regular meeting with parents. In my opinion, only about 50 percent of the parents in our community care about their children's studies.***

This failure of parent engagement in children's education allows students to have too much personal freedom. Therefore, some academic-poor performers might turn their attention to engaging in socially undesirable activities (e.g., playing games, hanging out with friends, associating with peers who are bad influences, or using alcohol or drugs).

4.1.3. Teacher and school factors

Teachers are important actors in students' learning. Students reported different experiences with their teachers. An 11th-grade low-performing student from a provincial school mentioned, ***"My teachers are good. They put effort into teaching. They give advice on our future careers. They also encourage poor students to come to study in their private tutoring classes free of charge."*** Another student from grade 12 added, ***"Our teachers treated both boys and girls equally and fairly. We have good relationships with them. They always encourage us to study hard and never use violence on us."***

However, some students in our study encountered negative experiences with their teachers. According to them, some teachers did not properly administer tests to assess students' understanding of the taught lessons, leaving students uncertain about their own learning abilities. Some items on the tests had not been taught in class. Furthermore, traditional teaching methods, characterised by teacher-centred activities, were identified as a demotivating factor that hindered students' engagement in the classroom. Such conventional teaching practices

may fail to captivate students' motivation. In addition, students were unfairly blamed when they performed poorly on tests, as one student puts it:

> ***…and when we failed the tests or exams, the teachers scolded us as poor-performing students and said that choosing the social science track was quite suitable to our abilities. While, in fact, they had not taught us the lessons and yet blamed us for our poor academic performance.***

Additionally, many students observed lax enforcement of school rules, allowing students to arrive late to class or skip classes altogether. Some teachers were reluctant to discipline students for their misconduct, particularly if those students were enrolled in their private classes. This depiction indicates a somewhat impractical school curriculum, while some teachers exploited the situation to create an unhealthy learning environment. Such instances have the potential to further demoralise students' motivation and commitment to learning.

> ***Some teachers did not pay attention to their teaching. They do not care if students understand the lessons or not. Sometimes, they are late to teach… and sometimes, they do not come to teach. However, some students are also not well-disciplined, as some are 30 minutes late to class.***

In addition to the aforementioned problems, students also faced inadequate curriculum delivery. Some students reported that there were too many lessons to cover and not enough time. An 11th-grade high-performing student remarked, ***"There are too many subjects, and there is little time to study. There is little time for us to practice."*** However, some participants perceived the inadequacy in curriculum delivery as deliberate actions by teachers. They claimed that certain teachers intentionally provided incomplete lessons and insufficient exercises during regular classes, often labelling students as uncommitted or underperforming. For instance, an 11th-grade student pointed out, ***"Teachers sometimes skipped lessons and designed test content that was not taught in class. Only tutoring students had access to those lessons. Consequently, tutoring students could solve test problems while non-tutoring students struggled"***. However, it is important to note that such practices are not typical, and there are also teachers who are striving their best to teach their students.

Another concern raised in the validation workshop was the ineffective distribution of teachers. In some schools, though there are enough teachers overall, they are not allocated according to subject needs. Consequently, teachers might have to teach subjects they are not trained for, leading to poor-quality learning experiences for students. In the validation workshop, teachers and school principals acknowledged the need for improvement in teacher quality and school facilities. They emphasised the importance of accountability, transparency, and increased attention to poor-performing students from both schools and teachers.

4.1.4. The impact of digital usage and technology

Participants in the study mentioned both the positive and negative impacts of technology on students. According to the student discussants, some students typically took advantage of technology by utilising platforms such as YouTube, Facebook, or educational apps to search for lessons or tutorial videos. This allowed them to access additional knowledge from available sources, which helped them gain extra knowledge and improve their overall academic performance. However, if used inappropriately, digital devices can be counterproductive for students. It was reported in our focus group discussions that some poor-performing students seemed to excessively use smartphones for entertainment purposes, such as playing games and engaging with social media. This behaviour often distracted them from their learning, even

during formal classes. A teacher exemplified this by stating, ***"They use smartphones to play games instead of searching for lessons to study. Sometimes students even use phones during class."*** As a result, many participants expressed concerns regarding the negative impacts of technology on students' learning. School rules regarding the use of digital devices in classrooms vary from one school to another. Some schools strictly prohibit the use of mobile phones in classrooms, whereas others permit students to use them freely for research purposes. However, some teachers admit that controlling students' use of digital devices can be challenging, given that students are often more tech-savvy than their teachers. Teachers need to be equipped with more knowledge and skills to effectively take the benefits from technology as a school principal put it:

> ***Our teachers do not give proper instructions or topics for students to research. They have limited knowledge in guiding the students on how to use digital devices in the right ways.***

During the validation workshop, teacher participants revealed that a significant number of students used social media platforms like TikTok and Facebook to generate income. Interestingly, this additional income was not meant to supplement their households' earnings but rather to support their lifestyles, enabling them to purchase goods and enjoy social activities.

4.1.5. The impact from society and peers

Besides digital technology use, the influence of peers is another significant factor impacting academic achievement. Generally, students who had friends who were high achievers exhibited positive behaviours and demonstrated a commitment to learning. A grade-11 high-performing student in a science class stated, ***"We look up to outstanding students as their role models, and we can follow their learning habits."*** Another grade-11 student in a different school added, ***"We can learn in a competitive learning environment, and some of our classmates try to study hard to compete with each other."*** In addition to these, students often spend time with their peers reviewing or discussing lessons and homework.

Conversely, students whose friends did not prioritise studies tended to frequently gather and engage in activities such as playing games or sports (e.g., football or volleyball), as reported by the participants. These activities were viewed as undesirable because they often resulted in students neglecting their studies. Their free time became invested in these activities, leaving little time for self-study activities. A female grade-12 high-performing student responded, ***"Boys gather together and skip classes to hang out. They go swimming or go to play football. There's a boy who has dropped out already who often comes to ask these boys out."*** In the same focus group discussion, the interviewer asked the male participants if that group mentioned by the girl had invited them to go out with them; the boys responded, ***"They did come to invite us, but we don't want to waste our time on such useless activities."***

However, the participants also acknowledged that students' obsession with technology and their interactions with peers could also be influenced by personal factors such as commitment, motivation, and the level of control exerted by schools and families, as discussed above.

During discussions at the validation workshop, virtually all groups pointed to vices such as drug use, vaping, gambling, and the promotion of alcoholic beverages as factors that have adverse effects on student learning and morality in society. Apart from drug use, there has been a notable increase in cases of vaping, or e-cigarette consumption, among students, both

within and outside school premises. Interestingly, the study found that vaping is not limited to male students; female students also partake, and this trend is more prevalent among students from more affluent families due to its relatively high cost. Participants cited the presence of numerous venues like gambling establishments, karaoke rooms, and internet cafes near schools, which entice students away from their studies. Both schools and teachers strongly urged local authorities to take more effective actions against these activities near schools, as they are beyond their control. There was a strong perception from participants that these social vices can negatively influence students' studies.

4.1.6. Private tutoring

In addressing the shortcomings of the school curriculum, most participants recognised the value of private tutoring as a supplementary method to enhance students' knowledge and competence. It is also noteworthy that students in the science track tend to enrol more frequently in these classes than their peers in the social science track. Science track students commonly focus on subjects such as Math, Physics, Chemistry, Biology, and Khmer in private classes. In contrast, social science students typically do not take supplementary classes for Physics, Chemistry, and Biology, as these subjects are not required in the national exams. The level of participation in private tutoring varied among schools, depending on students' financial resources and time availability.

Nevertheless, as noted by some participants, private tutoring proves beneficial only when students demonstrate dedication to their studies. Inadequate attention and commitment may still result in poor academic performance despite private tutoring support. A grade-12 math teacher expressed his opinion, ***"Private tutoring is only one of the many contributing factors. The most important factor is the students themselves. If they don't try to study, they still cannot get good results even if they attend private classes."*** Additionally, many discussants clarified that most students sought private classes to get extra lessons and exercises, and they also provided an opportunity to ask their teachers more questions. In so-doing, students can prepare themselves for examinations, such as the national grade-12 exams. In this context, private tutoring serves as an informal yet indispensable strategy for building students' competence and confidence in taking examinations. A grade-12 student remarked:

> ***Learning in private classes helps us to get better results than those who do not learn because, in private classes, the teacher can explain clearly and much more than in public classes. I always encourage other friends to go to private classes, and even the teacher also encouraged them to come to learn because this year is an examination year.***

Unfortunately, some participants also highlighted instances where students were indirectly coerced into taking private classes. Some teachers deliberately provided insufficient lessons and exercises, designed challenging test content based primarily on private class lessons, and awarded tough scores to students while attributing their poor academic performance to a lack of commitment. These covert tactics placed undue pressure on students from disadvantaged backgrounds. There were cases of unfair treatment between those who attended and those who did not attend supplementary classes, as a female high-performing student stated:

> ***In the monthly tests, the teacher provided different test questions to those who attended private tutoring and those who did not. There is a student who did fairly good in class, but he got a low score. He did not take private tutoring due to financial constraints. Sometimes, those who attended private tutoring even got extra points in exams.***

> ***…The society makes financially poor students feel hopeless as it allows teachers to offer private classes in the whole country. There are too many private classes now. No one restricts the private tutoring phenomenon – without knowing that private tutoring has a negative impact on financially poor students. Financially poor students cannot afford too many private classes…***

It was mentioned that teachers called for those financially disadvantaged students to come to their private tutoring classes without charge. However, these students often felt uncomfortable and embarrassed, leading them to decline such offers. A grade-12 math teacher said, ***"I always welcome those who cannot afford to come to study in my private tutoring classes for free. But they do not come. Some said that they didn't have time."***

This narrative regarding private tutoring activities presents another critical perspective for understanding the underlying causes of student's academic performance in Cambodia. It highlights that while the public-school curriculum is often perceived as burdensome or overwhelming, certain teachers seize the opportunity to intentionally deliver an incomplete curriculum, thereby creating an unhealthy learning environment within public schools. As a result, the quality of public-school education is compromised. Specifically, students facing financial constraints, displaying less commitment, poor discipline, inadequate academic performance, or struggling with self-study habits clearly lag behind their peers in class, which further exacerbates their disinterest and diminishes their hope for engaging in learning activities. This portrayal also underscores the presence of multiple factors at different levels that impact students' learning performance within the public education system. Moreover, this scenario not only highlights a significant learning gap but also exposes social inequality within public education.

4.1.7. High school tracking system and lack of basic foundation in basic education

The issue of dividing students into social science and science tracks in grades 11 and 12 did not clearly emerge from the fieldwork data. However, it was a prominent topic of discussion and a concern frequently raised by teachers and school management during the validation workshop. During these discussions, a teacher even questioned whether dividing students into social science and science tracks might be a reason for students' lack of motivation to study. All participants seemed to agree that many students choose the social science track primarily because it is perceived as easier to pass the national examination. A teacher echoed this sentiment.

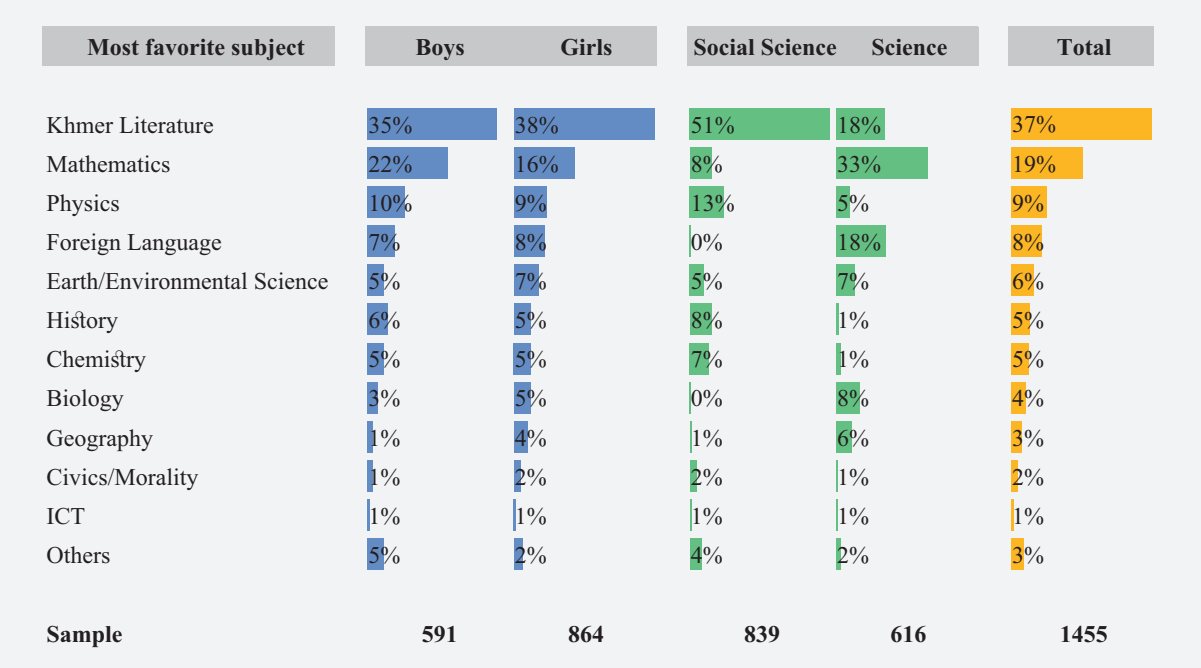
> ***There is a common perception that students opting for the social science track are those who are unwilling to work hard. Additionally, schools tend to encourage students who lack confidence in passing the national exam to choose the social science track.***

Another concern raised by both teachers and schools is that not all subjects taught in grades 11 and 12 are included in the national examination. In total, there are ten subjects taught in grade 12, excluding physical education, home economics, and technical education. However, students are expected to take only seven subjects in the national examination. Past examinations have shown that subjects like physics, chemistry, and biology do not appear in the national exam for the social science track. Similarly, in the science track, earth and environment science, geography, and morality subjects are not included. Understandably, students lack the motivation to study the subjects that do not appear in the national examination. Teachers also do not seriously teach those subjects, considering that these are not as important as the compulsory subjects. During the focus group discussions, some students expressed the view that learning these non-compulsory subjects was a waste of time. An 11th-grade high-performing student

remarked, ***"We're in a science class, but there is not enough time for us to practice exercises in science subjects as there are too many hours for social science subjects."***

As indicated in Figure 4, it is evident that students' choice of the science track is not influenced primarily by their preference for science subjects. Among those who opt for the science track, only 5 percent cited Physics as their favourite subject, and merely 1 percent considered Chemistry their favourite. Surprisingly, 18 percent chose Khmer as their favourite subject. During the validation workshop discussions with teachers and school principals, it became apparent that many high-performing students select the science track not necessarily because they have a passion for science but rather due to the perception that the social science track is chosen by those who are less committed to hard work and seek an easy path to passing the national exams.

Figure 4: Students' most favourite subject by gender and track



Source: Student survey 2023

Participants in the fieldwork also raised concerns about the challenge of delivering quality education due to the extensive range of subjects and limited learning hours. The curriculum includes numerous subjects and lessons, but the allocated time is insufficient for adequate coverage, posing difficulties for teachers and students alike. Some students find certain subjects irrelevant to their chosen educational path, viewing them as burdensome tasks that impede their ability to focus on preferred subjects. Some students showed less commitment and attention to subjects that would not be in the national examination. For instance, a Grade-11 male student in the science track said, ***"Sometimes we don't have enough time to study because we have to cover too many subjects, including irrelevant ones such as History or Geography."*** This concern has also been noticed by some teachers and school principals, who consider the lack of interest in certain subjects among students as one of the primary challenges in promoting learning engagement. A quote from a school principal effectively elucidates this issue.

> ***Some students are not interested in subjects that are not included in the national exams. No matter how much teachers try to teach, students still don't engage in learning.***

The lack of a strong foundation in basic education is a pressing concern in Cambodia, as highlighted by both in the workshop and during fieldwork by students, teachers and school principals. Cambodia does not employ automatic promotion; instead, decisions regarding promotion rely on classroom assessments by teachers. However, teachers face pressure from school principals, who are themselves under pressure from district and provincial education offices, to maintain low repetition rates. One teacher shared her frustration, recalling a time when she was blamed for the high number of repeaters in her class and was pressured to promote students who hadn't met the satisfactory performance criteria. This issue, echoed by students, teachers, and principals during fieldwork, underscores the struggle students face when their knowledge lags behind the school curriculum, making it difficult for them to comprehend lessons. For instance, a Grade-11 student in the science track explained, ***"Teachers cannot review lessons from previous academic years or grades. So, students with poor background knowledge will fall behind their peers."*** This concern is particularly noticeable in science subjects like Mathematics, Chemistry, and Physics. This challenge is closely linked to the issue of private tutoring, as it caters to individual learning needs, as discussed in Section 4.1.6.

4.2. Why girls are doing better than boys

Girls have consistently outperformed boys in recent years. The trend of female students achieving grades A, B, or C in the national exam surpassing their male counterparts began in 2015, and this achievement gap has continued to widen each year (see Table 1).

Table 1: National grade 12 exam results from 2014 to 2022

	Grade A			Grades A and B			Grades A, B, and C		
Year	All	Male	Female	All	Male	Female	All	Male	Female
2014	0.0%	0.0%	0.0%	0.3%	0.3%	0.2%	1.3%	1.3%	1.2%
2015	0.1%	0.1%	0.1%	1.4%	1.4%	1.5%	5.4%	5.2%	5.5%
2016	0.5%	0.4%	0.5%	3.6%	3.4%	3.8%	9.8%	9.1%	10.5%
2017	0.4%	0.4%	0.4%	2.9%	2.8%	2.9%	7.9%	7.6%	8.2%
2018	0.4%	0.4%	0.3%	2.3%	2.3%	2.3%	7.6%	7.2%	8.1%
2019	0.4%	0.4%	0.4%	2.5%	2.4%	2.6%	7.6%	6.8%	8.3%
2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2021	1.6%	1.4%	1.8%	6.4%	5.5%	7.1%	17.0%	14.1%	19.5%
2022	0.8%	0.9%	0.8%	6.6%	5.6%	7.5%	21.7%	18.1%	24.8%

Source: MoEYS's Department of Exam Affairs

Examining Table 2, which presents the overall performance of students by gender in the first semester of the academic year 2022-2023 in the surveyed schools, it is evident that the majority (approximately 70 percent) of the top 5 and top 10 performers are female students. While it is noteworthy that in specific classes, male students excel compared to their female counterparts, it is particularly significant that female students constitute more than two-thirds of the top performers. Furthermore, it is essential to highlight that there is a higher enrolment of female students in the surveyed classes compared to their male counterparts, with females making up about 60 percent of the sampled students.

Table 2: Top performers in class by sex and school

	Top 5 Students			Top 10 Students		
	Male	Female	Obs.	Male	Female	Obs.
School 1	40%	60%	20	40%	60%	40
School 2	20%	80%	20	23%	78%	40
School 4	20%	80%	5	20%	80%	10
School 5	20%	80%	10	25%	75%	20
School 6	40%	60%	10	40%	60%	20
School 7	40%	60%	5	30%	70%	10
School 8	38%	63%	16	33%	67%	30
School 9	60%	40%	5	50%	50%	10
School 10	0%	100%	5	10%	90%	10
School 11	20%	80%	5	10%	90%	10
School 12	60%	40%	5	30%	70%	10
School 13	27%	73%	15	27%	73%	30
School 14	0%	100%	5	0%	100%	10
School 16	20%	80%	20	20%	80%	40
School 17	40%	60%	5	30%	70%	10
School 18	0%	100%	5	10%	90%	10
School 19	40%	60%	15	40%	60%	30
School 20	47%	53%	17	47%	53%	30
School 21	20%	80%	10	25%	75%	20
School 22	38%	63%	16	30%	70%	30
School 23	31%	69%	16	30%	70%	30
School 24	20%	80%	10	19%	81%	21
Total	**30%**	**70%**	**240**	**29%**	**71%**	**471**

Source: Semester results from sampled schools

Given the higher number of girls than that of boys, it is better to compare their mean test scores. The comparison of semester test scores consistently demonstrates that girls outperform boys in both Mathematics and Khmer, as well as in overall semester performance. This trend holds true for students in both the science track and social science track, although the notable disparity in Khmer performance is particularly evident within the social science track.

The qualitative findings align with the quantitative data, as most participants affirm that female students tend to outperform their male counterparts academically. However, it is crucial to reiterate that the higher number of female students can skew the results, leading to a higher representation of females as top performers. For example, a school principal also observed that out of their 1,000 students, approximately 700 were female. This also indicates a concerning trend: male students are more prone to dropping out of lower secondary school.

Table 3: Difference in test scores in Semester 1 exams

	Science Track			Social Science Track		
	Boy	Girl	Gap	Boy	Girl	Gap
Khmer Performance	46.99	50.23	*-3.24***	66.90	79.21	*-12.60****
Mathematics Performance	71.33	77.22	*-5.88****	29.58	34.90	*-5.32****
Semester Performance	33.18	34.89	*-1.71***	27.28	31.51	*-4.23****
Number of Obs.			869			1371

Source: Semester results from sampled schools

Some discussants pointed out distinctions in academic performance, noting that male students excelled in science subjects such as Math, biology, or physics, while female students performed exceptionally well in social science subjects. A small subset of participants observed no significant gender disparity in learning outcomes, explaining that academic performance varied irregularly without a consistent pattern favouring either gender. They emphasised that academic success was more closely linked to individual factors than gender.

Notably, despite the lack of unanimous consensus on learning outcomes, all participants tended to agree that female students exhibited superior learning behaviours compared to their male peers. This observation could potentially explain the gender bias observed in academic results, as conceptualised in this study. The subsequent sections will delve into the learning behaviours of male and female students in the Cambodian context and other factors that seem to contribute to the learning gap reversal.

4.2.1. Gender-based differences in learning behaviours

We observed various behavioural disparities between male and female students as a grade-11 high-performing student noted, ***"Boys are playful, pay less attention to studies, play games, and like chitchatting even during class, especially boys in the back rows."*** In another focus group discussion, the student respondents share the same sentiments.

> ***M1: Female students perform much better academically. The reason is that girls pay more attention in class and focus more on studying.***
>
> ***F1: This is true. During classes, girls pay more attention, and even during break time more female students stay in class to study while boys go out and play.***
>
> ***F2: This is not always the case. Female students do not study all the time, and they also do leisure activities when they are stressed from study. I believe that boys and girls perform equally well if both put in equal effort.***
>
> ***M2: For me, I think females do better.***
>
> ***F3: For me, I think girls tend to have higher scores than boys. There are some boys who can break into the top of the class, but this does not happen often.***

The responses from our respondents overall show various gender differences in self-study habits, learning commitment, self-discipline, class participation, and class attendance. The majority of the participants noted that girls demonstrated stronger self-study habits and were more diligent in completing their academic tasks. Female students would often spend time reading books, reviewing lessons, and doing exercises. On the other hand, male students appeared to engage in activities such as playing online games, checking social media, hanging out with friends, or playing sports during their free time. Female students tended to be involved in less active activities such as chitchatting, visiting new places, eating with friends, or doing housework.

As indicated in Table 4, a significant number of teachers and school principals tend to believe that boys spend more time on digital devices for entertainment, while girls use digital devices more for learning purposes. Data from the student survey also validates this, showing that male students dedicate more time to leisure activities like gaming and sports, especially in the company of their peers.

Table 4: Teachers and principals' perceptions on student behaviours

	Girls spend more time	No difference	Boys spend more time	Don't Know
Results from the Teacher Survey (N=52)				
Time spent with peers outside the schools	33%	29%	27%	12%
Time spent using digital devices for learning	40%	40%	13%	6%
Time spent using digital devices for entertainment	10%	29%	52%	10%
Results from the School Survey (N=20)				
Time spent with peers outside the schools	15%	45%	30%	10%
Time spent using digital devices for learning	30%	55%	10%	5%
Time spent using digital devices for entertainment	10%	30%	45%	15%

Source: Teacher and school surveys 2023

Furthermore, female students were perceived to possess better self-discipline and a stronger commitment to their studies compared to their male peers. They put more effort into learning, actively participated in school activities, and diligently completed assigned work. In contrast, male students were perceived as playful, less attentive, and more inclined towards entertainment activities like playing games and hanging out together. These findings revealed a clear pattern of behavioural disparities between male and female students. A grade-12 Math teacher highlighted this by stating:

> ***First, girls pay more attention than boys. They put effort into doing all the work assigned to them. They volunteer to solve exercises in class. Boys don't do the homework and always have excuses.***

Data from interviews, discussions, and the validation workshop suggested that male students tended to have lower class attendance rates compared to their female counterparts. They were more likely to arrive late to class or skip classes, often in groups, to engage in social activities with friends. Some female students also perceived male students to be troublemakers who skipped class to play football or ride motorcycles with their friends. However, both male and female students sometimes played truant due to illness or if they disliked certain teachers. Teachers generally did not take serious action, and attendance reports would only be sent to parents after a certain number of absences (e.g., ten times). Additionally, some participants noticed that high-performing students, regardless of gender, exhibited greater participation in class activities. They were more active in answering and asking questions, demonstrating their engagement with the learning process. In this context, both genders equally participated in classroom activities and physical exercises. However, female students were observed to pay more attention, listen attentively to the teacher, and participate more actively compared to their male counterparts.

4.2.2. Family factors

There were mixed responses regarding parental support for children's education. Many participants believed that parents nowadays strive for equal educational opportunities for both genders and may favour one gender over the other based on their learning abilities. Some parents believe that providing the best education for their daughters ensures they are not solely reliant on their future husbands, while boys' education may not receive the same level of attention. This discrepancy could contribute to academic underperformance among boys and their inclination toward socially undesirable activities. Additionally, in some cases, dropout rates tend to be higher among male students due to perceived poor academic performance and the appeal of entering the workforce. Boys are likely to face fewer risks than girls even if they work far from home, while girls can continue their education and support household chores. Boys living in provinces near the Thai border faced a higher risk of dropout and work migration. However, there seemed to be no strong evidence indicating gender-biased parental support, as reported by the participants.

As shown in Table 5, both male and female students engage in household and economic activities to assist their parents with workload burdens, but it appears that boys generally engage more in economic activities and undertake more physically demanding and remote-area tasks. This can lead to exhaustion upon returning home, which might affect their motivation for self-study activities and pursuing education at school. In contrast, girls tend to engage more in household chores, allowing them some spare time to review lessons or do exercises at home (see a quote below). In cases where students do not contribute significantly to the family's income, some parents seem to focus solely on their work, leaving little time to monitor their children's education.

Table 5: Student engagement in household and economic activities

	Total	Females	Males	Differences
Engaged in household activities	95.74%	96.88%	94.08%	2.80%
Average time spent (in hours)	4.67	4.76	4.54	0.22
Engaged in economic activities	22.20%	19.33%	26.40%	-7.07%
Average time spent (in hours)	6.55	6.35	7.76	-1.41

Source: Student survey 2023 (N=1455)

This lack of oversight regarding children's learning behaviours, coupled with the freedom given to boys and their susceptibility to social factors, becomes a major issue affecting students' learning performance. Consequently, boys may engage in socially undesirable activities, as mentioned above. On the other hand, girls' behaviours may be shaped by cultural norms that expect them to adhere to proper conduct and avoid engaging in inappropriate activities. This cultural influence limits girls' freedom to play truant or frequently hang out, leading to more responsible behaviours compared to boys.

> ***Like I said earlier, boys have to help with their parents' work to earn income. Girls also have to help, but they only do work that is not far from home. When they have to travel to forest or remote farms where they have to sleep there one night or more, only boys will go. They don't have time to learn when they travel to work." Grade-11 Math teacher***

4.2.3. Teacher and school factors

Many participants indicated that the lack of enforcement of school rules and regulations negatively affects student learning, especially boys. While there were rules in place, their

enforcement seemed weak, leading to issues such as students playing truant, playing games, and arriving late to school. The participants emphasised the need for the school to reinforce rules regarding student attendance. It is observed that when students reached their absence limit, contacting their parents was ineffective in deterring further absences. The teachers also mentioned an increase in students skipping class due to a perception that previous students who skipped were still eligible for national exams. Boys were perceived as more susceptible to all these vices. Worse still, ineffective enforcement of the school rules and disciplines provided more opportunities for male students, especially those who were already performing poorly academically, to play truant or abandon their commitment to learning. They would redirect their attention towards social activities instead. In contrast, female students were more likely to maintain good behaviour in classes, as they are typically influenced by cultural norms. A grade-12 female student remarked, ***"Boys in my class have their new friends who ask them to go out. So they skip classes to hang around together. Female students are not easily influenced by such friends."*** However, there is no evidence suggesting the schools apply rules differently based on students' gender.

4.2.4. The impact of digital usage and technology

The data have indicated some gender differences in the use of digital devices and their impacts on learning performance among students. As shown in Table 6's Panel A from the student survey, the overall trend suggests that female students are likely to spend more time using digital devices for educational purposes and communication with peers than boys. They seem to dedicate their time to reviewing lessons and watching educational videos on online platforms. On the other hand, male students were reported to demonstrate a higher tendency to spend more time on gaming and entertainment. On average, male students reported spending 4.31 hours on the internet, whereas female students spent slightly less, at 4.19 hours (Refer to Table 6's Panel B).

Both quantitative and qualitative data suggest that there is no noticeable difference in exposure to digital technology between female and male students. However, their consumption patterns differ significantly. Although the disparity is not very clear in the self-reported student survey, it becomes more distinguishable in the qualitative data. According to qualitative findings, both girls and boys are engaged in social media distractions (e.g., Facebook, TikTok, or YouTube), but boys spend more time on gaming activities. During a student group discussion, it was noted:

> ***Girls usually don't play games. Boys mostly play games that make them more addicted and cause them to lose attention to their studies. Girls might use phones to search for lessons or ideas related to topics assigned by teachers.***

Numerous participants provided illustrative examples of this disparity. It was observed that female students frequently utilise smartphones to access educational content on platforms like Google, YouTube, and educational apps. The accessibility of these educational applications has significantly supported knowledge seekers, proving especially advantageous for girls perceived to exhibit strong learning commitment and discipline, as discussed earlier. In contrast, male students tend to spend considerable time playing video games, potentially neglecting homework assignments or lessons. Extended use of technology late into the night can further negatively affect class participation and attendance, leading to issues like absenteeism or tardiness, as discussed in Section 4.2.1.

Table 6: The main purpose of using the internet

	Male	Female	Gap
A. The main purpose of using the internet			
- Studying	37.8%	41.8%	-4.0%
- Entertainment	10.0%	8.0%	2.0%
- Playing games	2.9%	0.5%	2.5%
- Communication with friends	19.5%	22.6%	-3.1%
- Others	29.8%	27.1%	2.7%
B. Average daily hours spent			
- Playing games (Includes non-players)	1.04	0.49	0.55
- Playing games (Players only)	1.66	1.40	0.26
- Time on internet	4.31	4.19	0.11
- Facebook	1.32	1.46	-0.14
- Telegram	1.10	1.02	0.08
- Instagram	0.50	0.60	-0.10
- TikTok	1.11	0.90	0.20
- Line	0.40	0.28	0.13

Source: Student survey 2023 (N=1455)

4.2.5. The impact of society and peers

In addition to technological impacts, social interactions with peers also play a significant role in explaining gender differences in academic success. Qualitative data from both fieldwork and validation workshops indicate that there is a widespread perception that boys not only show a stronger inclination towards online gaming but are also increasingly involved in gambling, excessive sports activities, and drug use. Among males, football and volleyball are the most popular sports. Low-performing students have confessed to skipping private tutoring classes, using both their time and money to indulge in sports. It is common for losing teams to cover the playground rental fees and provide drinking water. In a group discussion, a group of low-performing students raised:

> ***We play football from 6 pm to 7:30 pm after the private tutoring class, typically 2-3 times per week. On the days when we do not play, we still go to the football field to watch others play … As a part of the competition, the losing team take responsibility for covering the playground fees or buying drinking water, usually ten bottles for the winning team.***

Additionally, there have been incidents involving gambling. However, it is challenging to attribute poor learning performance solely to playing sports, as it could be that underperforming students with less commitment tend to spend more time on sports and less on learning. Schools in provinces near the Thai border report a higher incidence of drug use, particularly among male students. Males are more prone to dropping out of school and migrating for work in Thailand. Upon their return for home visits, some of them bring drugs with them and invite their old school friends to hang out. In an interview during the fieldwork, a principal said:

> ***The issues in our society, especially drug usage, affect the academic performance of male students. Male students in our school who befriended negative peers and were arrested due to drug problems … I suspect around 7-10 students in the social science classes are using drugs. But this is just my observation; we have not caught them using it yet.***

4.2.6. Private tutoring

While the student survey did not reveal any significant differences in private tutoring or the time devoted to it, qualitative data shed light on a gender difference in private tutoring attendance and its impact on academic performance. Notably, about 91.89 percent of male students and over 95.22 percent of female students participated in private tutoring. Approximately one-third of them started these supplementary classes in grade 7 or earlier in primary school. Based on the group discussion with students, there was higher participation of female students in private tutoring, particularly in subjects such as Math, Khmer, and Chemistry, suggesting a potential advantage for girls in these academic areas.

Table 7: Student participation in private tutoring

	All	Gender		Track	
		Boys	Girls	Social Science	Science
Have you ever participated in any private tutoring classes?					
- Yes	94.28%	92.89%	95.22%	91.78%	97.47%
- No	5.72%	7.11%	4.78%	8.22%	2.53%
At which grade did you start receiving private tutoring?					
- Primary Education	31.93%	31.91%	31.94%	29.17%	35.25%
- Grade 7	32.35%	28.30%	35.01%	30.40%	34.69%
- Grade 8	6.49%	7.66%	5.72%	6.48%	6.49%
- Grade 9	12.81%	11.49%	13.67%	14.97%	10.20%
- Grade 10	7.33%	6.60%	7.81%	8.64%	5.75%
- Grade 11	5.64%	8.30%	3.91%	6.17%	5.01%
- Grade 12	3.45%	5.74%	1.95%	4.17%	2.60%
Sample	1,187	470	717	648	539

Source: Student survey 2023 (N=1455).

Moreover, according to the qualitative data, boys tend to skip tutoring sessions, particularly in evening classes, more frequently for social activities. The lower rate of male students participating in private classes can be attributed to their personal commitments, financial constraints, and enthusiasm for social activities such as spending time with friends or playing sports. In contrast, girls' participation is more likely influenced by financial constraints or safety concerns in specific areas, which limits their opportunities for evening tutoring classes.

5. Conclusion and policy recommendations

5.1. Conclusion

The present study analyses the factors influencing students' academic performance in Cambodia, with a specific focus on gender-based disparity. It reveals a multi-faceted interplay of individual, familial, school and societal factors. While acknowledging the observed trend of girls outperforming boys, it is crucial to emphasise the complexity of the determinants involved.

Fundamentally, individual student factors, such as self-study habits, academic commitment, motivation, and discipline, emerge as pivotal contributors to academic success. High-performing students, irrespective of gender, demonstrate a proactive engagement with technology and utilise supplementary resources, including private classes, to enhance their learning outcomes. However, these individual factors are intricately linked to family dynamics

and the socio-economic context. Family factors, ranging from strict monitoring to financial constraints, significantly shape students' attitudes towards learning. The study underscores the importance of family support in fostering good learning habits and discipline. Additionally, socio-economic challenges, including the need for financial support and engagement in economic activities, can impede students' concentration and motivation. Moreover, the role of individual schools emerges as an important determinant of academic success. Inadequate school instruction and insufficient strategies for dealing with underperforming students contribute to academic disparities among students. The study has identified a nuanced relationship between technology use, peer influence, and academic outcomes, illustrating the double-edged impact of technology on learning.

Addressing the observed gender-based learning disparity requires an understanding of cultural and societal influences. Social norms in Cambodia, which provide greater freedom to boys, can lead to misbehaviour and a lack of focus on studies. Cultural expectations and perceptions of social norms contribute to boys' tendencies to be less diligent in their academic pursuits, reflecting a broader societal context.

In conclusion, while acknowledging the apparent trend of girls excelling academically, this study emphasises the need to move beyond simplistic gender-based generalisations. Academic success is a result of intricate interactions between individual, familial, and societal factors. Policymakers, educators, and families should collaboratively work towards creating an environment that nurtures positive learning habits, addresses socio-economic challenges, and transcends gender stereotypes to ensure equitable academic outcomes for all students in Cambodia.

5.2. Policy recommendations

To address the gender gap in learning performance, the study proposes the following recommendations:

- **Minimising Negative Societal, Community, and Peer Influences**: The lack of engagement among stakeholders, including parents and local authorities, in monitoring students' activities and behaviours is a significant contributing factor to the gap in learning performance. This deficit in oversight grants students greater freedom, with boys often more susceptible to negative influences, particularly in Cambodia, where cultural norms afford boys greater latitude. Sociological perspectives suggest that males are predisposed to engage in socially undesirable activities due to prevailing behavioural norms, social dynamics, and perceived cultural liberties (Henslin 2012). While girls may face constraints imposed by cultural norms, they are not immune to detrimental influences such as online gaming and substance abuse. Active parental involvement in supporting and monitoring children's learning is essential, alongside improved communication channels between parents and teachers. However, addressing these challenges necessitates robust collaboration not only between schools and parents but also involving local authorities and relevant ministries. Local authorities must take decisive action to curb illegal gambling and other societal ills, particularly in proximity to educational institutions. Government intervention may include measures to restrict the promotion and sale of alcoholic and caffeinated beverages harmful to students' health, with stringent enforcement of regulations prohibiting their presence on school premises. Addressing these societal issues requires cohesive engagement among communities, families, schools, local authorities, and the central government to foster holistic education and nurture well-rounded citizens.
- **Leveraging Technology for Enhanced Teaching and Learning**: Technology presents both opportunities and challenges in education. While technology can enhance teaching

and learning, its indiscriminate use may yield adverse effects. To harness the benefits of technology, schools and educators must possess the necessary capabilities to monitor students' technology use and guide constructive applications of technology for learning purposes. Moreover, technology usage should be regulated and limited to instances where it complements classroom activities effectively.

- **Promoting Sports as Extra-curricular Activities**: While some students exhibit keen interest in sports activities, a subset may prioritise sports to the extent that they neglect their academic responsibilities. Given the limited availability of sports-related extra-curricular opportunities in Cambodian schools, governmental initiatives to expand such activities can cater to students with athletic talents and aspirations. Establishing official sports clubs, organising inter-school competitions, and fostering structured sports programs can mitigate unsupervised activities and absenteeism, thereby promoting balanced student development. Further investigation is warranted to identify root causes and develop targeted interventions for addressing this issue comprehensively.

- **Enforcing school discipline and enhancing school accountability and transparency**: Students with poor commitment or discipline to learning are prone to divert their attention from studies and engage more in social activities, increasing their chances of missing class and dropping out. Boys are particularly vulnerable to the negative effects of this ineffective provision of education due to fewer cultural restrictions and a higher susceptibility to distractions from social activities. Therefore, it is undeniably necessary for schools to consistently enforce their regulations. Placing a strong emphasis on punctuality and discipline is crucial, ensuring that students grasp the ramifications of their actions and that there are consequences for flouting the established rules. By proactively addressing these issues and cultivating a more disciplined learning environment, there is a strong likelihood of improving students' academic performance. Empowering the school discipline committee rather than solely relying on the school director or school management to enforce the school rules is a solution for consideration. Presents should also be informed regularly and in a timely manner about the attendance of their children, for instance, through a Telegram group. Nevertheless, the successful implementation of these proposed interventions requires a strong commitment from school leaders to prioritise the quality of education as well as support from the government. Urgent action is also needed to enhance school accountability and transparency, especially in cases where poorly performing, frequently absent students are allowed to sit for national exams, undermining students' commitment to their studies.

- **Need-based financial support**: Furthermore, the study indicates that certain underperforming students confront family-related obstacles, notably financial constraints and engagement in economic pursuits. Boys, in particular, tend to be disproportionately affected by these factors, given their stronger natural physical ability, compared to that of girls, to engage in various forms of labour. Consequently, it is advisable to consider initiatives such as scholarships, as suggested by some participants, or financial support for both male and female students in need. Such measures hold the potential to inspire greater dedication to academic pursuits. This form of support can effectively ease their financial burdens, inspiring a greater dedication to academic pursuits and encouraging them to prioritise their studies over work. These need-based scholarships aim to ensure that financial limitations do not impede access to quality education. Additionally, offering financial aid for students in need can encompass services like tutoring or participation in study groups, enabling struggling students to bridge the gap and catch up with their peers academically.

- **Holistic Approaches to Student Counselling:** Based on our findings, it is evident that male students are disproportionately affected by social vices such as drug use and alcohol, which significantly hinders their academic performance compared to their female counterparts. In light of this, the study recommends a study to examine the effectiveness of current career counselling programs which are conducting in 165 secondary schools across Cambodia. This study should assess the potential for broadening the scope of these programs to include how to better provide not only career advice to students but also comprehensive support services to address both academic and socio-emotional challenges. Such expanded roles could provide students, particularly male students who are struggling with societal pressures, with the necessary guidance, support, and tools to foster a positive self-concept and academic success. Furthermore, we propose that MoEYS consider incorporating these expanded counselling services into pre-service teacher training and ongoing teachers' professional development programs. By equipping teachers with the skills to support students holistically, we can create a more inclusive and supportive educational environment that addresses the diverse needs of all learners.

References

Adamecz-Volgyi, Anna, John Jerrim, Jean-Baptiste Pingault, and Dominique Shure. 2023. *Overconfident Boys: The Gender Gap in Mathematics Self-Assessment*. Discussion Paper No. 16180. Bonn: IZA. http://dx.doi.org/10.2139/ssrn.4464593.

Borgonovi, Francesca, Alessandro Ferrara, and Soumaya Maghnouj. 2018. *The Gender Gap in Educational Outcomes in Norway*. Education Working Papers No. 183. Paris: OECD. https://doi.org/10.1787/19939019.

Chea, Phal, and Keiichi Ogawa. 2020. "Analysis of Demand-Side and Supply-Side Factors on Learning Outcomes in Cambodia." *Journal of Economics & Business Administration* 221 (6): 1–20. https://doi.org/10.24546/E0042048.

Chea, Phal, Muytieng Tek, and Sorsesekha Nok. 2023. *Gender Gap Reversal in Learning and Gender-Responsive Teaching in Cambodia*. Working Paper Series No. 141. Phnom Penh: CDRI. https://cdri.org.kh/publication/gender-gap-reversal-in-learning-and-gender-responsive-teaching-in-cambodia.

Cox, Theo. 2000. "Pupils' Perspectives on Their Education." In *Combating Educational Disadvantage: Meeting the Needs of Vulnerable Children*, edited by Theo Cox, 136–55. London: Falmer Press.

Creswell, John W. 2014. *Research Design: Qualitative, Quantitative and Mixed Methods Approaches*. 4th ed. Thousand Oaks, CA: SAGE Publications.

Driessen, Geert, and Annemarie van Langen. 2013. "Gender Differences in Primary and Secondary Education: Are Girls Really Outperforming Boys?" *International Review of Education* 59 (1): 67–86. https://doi.org/10.1007/S11159-013-9352-6/TABLES/5.

Everett, Silas, and Menghun Kaing. 2014. "Poll Shows Fighting Corruption Drives Support for Education Reform in Cambodia." The Asia Foundation. 15 October 2014. http://asiafoundation.org/in-asia/2014/10/15/poll-shows-fighting-corruption-drives-support-for-education-reform-in-cambodia.

Francis, Becky. 2002. *Boys, Girls and Achievement*. London: Routledge.

Gu, Xiaorong, and Wei Jun Jean Yeung. 2021. "Why Do Chinese Adolescent Girls Outperform Boys in Achievement Tests?" *Chinese Journal of Sociology* 7 (2): 109–37. https://doi.org/10.1177/2057150X211006586.

Henslin, James M. 2012. *Sociology: A down-to-Earth Approach*. 10th edition. Boston, MA: Allyn & Bacon.

Kahu, Ella R. 2013. "Framing Student Engagement in Higher Education." *Studies in Higher Education* 38 (5): 758–73. https://doi.org/10.1080/03075079.2011.598505.

Lietz, Petra. 2006. "A Meta-Analysis of Gender Differences in Reading Achievement at the Secondary School Level." *Studies in Educational Evaluation* 32 (4): 317–44. https://doi.org/10.1016/J.STUEDUC.2006.10.002.

Marshall, Jeffry H. 2022. "Learning Loss in the Covid-19 Pandemic Era: Evidence from the 2016-2021 Grade Six National Learning Assessment in Cambodia." Phnom Penh: UNICEF. https://www.unicef.org/cambodia/reports/learning-loss-report.

Meinck, Sabine, and Falk Brese. 2019. "Trends in Gender Gaps: Using 20 Years of Evidence from TIMSS." *Large-Scale Assessments in Education* 7 (1): 1–23. https://doi.org/10.1186/S40536-019-0076-3/TABLES/6.

OECD. 2019. "Girls' and Boys' Performance in PISA." In *PISA 2018 Results (Volume II): Where All Students Can Succeed*. Paris: OECD. https://www.oecd-ilibrary.org/education/pisa-2018-results-volume-ii_b5fd1b8f-en.

———. 2023. "PISA 2022 Results (Volume I): The State of Learning and Equity in Education." Paris: OECD. https://www.oecd-ilibrary.org/education/pisa-2022-results-volume-i_53f23881-en.

Reilly, David, David L. Neumann, and Glenda Andrews. 2019. "Gender Differences in Reading and Writing Achievement: Evidence from the National Assessment of Educational Progress (NAEP)." *American Psychologist* 74 (4): 445–58. https://doi.org/10.1037/AMP0000356.

Smith, Emma. 2003. "Failing Boys and Moral Panics: Perspectives on the Underachievement Debate." *British Journal of Educational Studies* 51 (3): 282–95. https://doi.org/10.1111/1467-8527.T01-2-00239.

Takeuchi, Mamiko. 2022. "Determinants of Academic Achievement in Japanese University Students: Gender, Study Skills, and Choice of University." *SN Social Sciences* 2 (83): 1–25. https://doi.org/10.1007/S43545-022-00388-7.

UNESCO. 2015. "Incheon Declaration and Framework for Action for the Implementation of Sustainable Development Goal 4." UNESCO. https://uis.unesco.org/sites/default/files/documents/education-2030-incheon-framework-for-action-implementation-of-sdg4-2016-en_2.pdf.

Van Houtte, Mieke. 2004. "Why Boys Achieve Less at School than Girls: The Difference between Boys' and Girls' Academic Culture." *Educational Studies* 30 (2): 159–73. https://doi.org/10.1080/0305569032000159804.

Warrington, Molly, M. Younger, and J. Williams. 2000. "Student Attitudes, Image and the Gender Gap." *British Educational Research Journal* 26 (3): 393–407. https://doi.org/10.1080/01411920050030914.

Workman, Joseph, and Anke Heyder. 2020. "Gender Achievement Gaps: The Role of Social Costs to Trying Hard in High School." *Social Psychology of Education* 23 (6): 1407–27. https://doi.org/10.1007/S11218-020-09588-6/TABLES/5.

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