

## IMPACTS OF TECHNOLOGY INTEGRATION ON SELF-REGULATED LEARNERS IN LEARNING ENGLISH LANGUAGE AND LITERATURE

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### **Abstract**

*This purpose of this research was to identify the types of technological tools used, examine self-regulation methods used by students, and elucidate the impacts of technology integration on language and literature learning. Specifically, the research examined how self-regulated students in the International Baccalaureate Middle Years Programme (IB MYP) utilized technology in learning English language and literature and what were the resulting effects of technology utilization in such situation. The research used a mixed-method approach involving a survey and semi-structured interviews with IB MYP language and literature teachers and students. The research found that there were diverse ways which self-regulated learners engaged with technology for language acquisition process, and technology integration was crucial to support specific learning goals. The research findings could contribute valuable insights into the efficacy of technology integration in IB MYP language and literature classrooms within the Malaysian educational context, emphasizing the importance of technology as a facilitator of student-centred learning. This study addressed a significant gap in understanding the interplay between technology and self-regulated learning in IB MYP settings, providing practical implications for educators, students, and policymakers striving to enhance language and literature education in the digital age.*

*Keywords: Technology integration, self-regulated learning, language and literature, student-centred learning*

### **Introduction**

In this digital era, societies are largely impacted by the information communication technology (ICT) and the internet becomes the global information highway making all kinds of information and knowledge becomes readily accessible to people through smart phones and computers. In this context, it is a pre-requisite for the 21st century learners to integrate technology in their learning process. Therefore, it is significant for all learners to develop meaningful technology-based knowledge in order to maximize their learning (OECD, 2010). Specifically, the concepts of teacher-centred learning and student-centred learning have emerged with the use of technology whereby teachers act as facilitators and guide their students' learning and thus increase their learning (Riasati et al., 2012). A student-centred learning not only helps them to

learn their best in the classroom but also stimulates them to self-study at home and outside the classroom. This is important for language learners as language learning is a skill-based subject which needs constant practice and exposure to the language learning environment.

Specifically, learners learning a new language require a great deal of language support to improve their listening, speaking, reading, and writing (LSRW) skills (Pintrich, 2000). To achieve this, technology plays an integral role in students' language acquisition by furnishing valuable language experiences to them. Particularly, the learners who are self-regulated in their learning are not only more dynamic and iterative but also constructive and active in their learning by setting goals, regulating, monitoring, and controlling their motivation, cognition, and behavior (Pintrich, 2000). This is strongly reiterated in other terms by Lewis & Vialleton (2011) stating that the SRL strategies are regarded to be the most important strategies to help students expand a sense of personal control which is the leading factor to academic success. Since the concept of SRL gained its focus by the academicians, more research on SRL have produced a new insight into the combination of technological tools and SRL in language learning as SRL allows students to use a variety of sources for language learning activities (Lai, 2013).

Research on technology-enhanced learning environments has exposed a myriad number of ICT tools to support language learning, helping to enrich both the contexts of classroom-based instruction and beyond the classroom instruction (Kitsantas, 2013). What is more important in the current study is not just focusing on any language learners, but specifically self-regulated learners in Malaysia in IB MYP curriculum learning language and literature subject. Though the current research provide greater insights into the efficacy and impact of the use of technology for pedagogical purposes such as electronic dictionaries in Mekheimer (2018), wikis in Kizil (2015) and to name a few, there is a gap concerning the use of technology by learners individually in both inside and outside the classroom for language learning (Lai and Gu, 2011) and especially concerning the self-regulated IB MYP English language learners. Hence the current study is implied to address this gap and to provide insights into IB MYP learners' self-regulated use of technology for English language learning purposes and its impact on them with a specific focus on IB MYP learners of Malaysian context.

### **Statement of the Problem**

Literacy will always have political dimensions, and digital literacy is no exception. Marvin (1988) states that new communication technologies present important "forums for negotiations" for the conduct of social life. The internet has certainly been a boon for trade and cultural diffusion, it exists the biggest potential benefits to education, social inclusion and political participation. On the other hand, the internet can also be a tool for manipulation, domination, and exploitation. Technology provides extra openings for students to formulate ideas, both individually and collectively. At the same time, the technology tool itself sometimes can become the center of student learning, overshadowing the subject skills. Hence the problem that the IB schools, parents, self-regulated learners and all educators community are facing that whether the use of technology is seen as a panacea, or a goal in and of itself, or as one means to support specific learning goals (Marvin, 1988; OECD, 2010).

The advancement of technology in this 21st century portrays that the current and the future world of business, education, environment, societies, and media will entirely be functioning based on technology. Hence, integrating technology in teaching and learning especially in English language classes is vital for the development of students' knowledge. However, there arises the question whether there is a positive impact among self-regulated learners in integrating technology for language learning. The survey conducted by Ministry of Education, Malaysia (MES, 2018) shows that the ICT usage in schools continues to lag

expectations both in terms of quantity and its quality, that approximately 80% of teachers spend less than an hour a week using ICT in classrooms. Also, UNESCO (2012) review projects that the ICT usage has not gone much further than the use of Microsoft Word as ICT tools in classrooms (MES, 2018). The recent studies on the use of technology for both teaching and learning in the public schools of Malaysia show better results; however, there are not many studies conducted on the use of technology specifically about IB schools in Malaysia for language learning purposes particularly focusing on self-regulated learners. Hence, this study provides insight into the specific ways that technologies influence the self-regulated learners, what social consequences result from using one form of technology versus another, how they use language and what communicative consequences follow those uses of language by means of understanding and learning (UNESCO, 2012; MES, 2018).

### **Objectives of the Study**

The main objectives of this study were to:

- i. Explore the types of technological tools that self-regulated learners use to learn English language and literature specifically focusing on the Malaysian IB MYP context.
- ii. Examine the methods that learners use to self-regulate them for language learning.
- iii. Explain the impacts of using technology in language and literature learning by self-regulated learners (Brown et al., 2011; Zimmerman & Schunk, 2001).

### **Research Questions**

The research questions guiding this study were:

1. How do IB MYP learners self-regulate themselves to integrate technology for English language learning inside and outside the classroom?
2. What kinds of technological tools do the IB MYP self-regulated learners use for English language learning?
3. How do different technological applications impact self-regulated learners in language learning?

In terms of significance, this study contributes to knowledge in the field of language and literature education in IB education. As mentioned before, there is a research gap as many studies have focused on integrating technology and its impact in English language learning; whereas, only a very few studies have been attempted particularly focusing on IB MYP classes. Hence through this research, the IB MYP language teachers, learners, parents and IB world schools, particularly in Malaysia, will benefit through the outcomes of this research as this study brings an insight into the impacts (both positive and negative) of integrating technology by self-regulated learners in IB MYP Level in Malaysian context. Also, it provides the benefits of using various technological tools and their impacts in language learning both in and out of the classroom (Marvin, 1988; OECD, 2010).

### **Limitations**

This study encountered several limitations. Firstly, the sample size for semi-structured interviews was restricted to three MYP English language and Literature teachers from a single school in Selangor. Although efforts were made to include a broader representation by selecting five schools across Malaysia for the survey portion, logistical constraints and time limitations

necessitated online interviews with teachers only from Selangor. Consequently, the diversity of perspectives might have been compromised, as not all regions were equally represented. Moreover, a few teachers declined participation, further restricting the interview pool to one region. However, it is noteworthy that the participating teachers from Selangor engage in continuous professional development alongside their counterparts in other regions, suggesting a level of consistency in teaching approaches and assessment methods across the Malaysian context.

## **Research Methodology**

Following Creswell and Creswell's (2017) framework, this research used a mixed methods approach that combines quantitative and qualitative data collection techniques. Qualitative studies, as expounded by Creswell (2014), pivot on descriptive analyses within a functional framework, prioritizing subjective experiences and interpretations. Conversely, quantitative approaches involve the use of survey and statistical analyses to discern patterns and correlations within numerical data.

The study involved educators and students within the International Baccalaureate (IB) curriculum in Malaysia, with a specific focus on participants in the Middle Years Programme (MYP). Stringent selection criteria ensure that participants represent schools that prioritize technological integration and the cultivation of 21st-century learning competencies.

Participants were chosen based on predefined criteria, including their affiliation with IB curriculum schools and their roles as English language and literature teachers or MYP students. Cluster sampling was employed as the sampling method, drawing participants from diverse geographical regions across Malaysia

Survey questionnaires and semi-structured interviews served as the primary data collection instruments. The primary data collection spanned a three-month period, employing online surveys and video calls for semi-structured interviews. Pilot testing and member checking were conducted to further ensure the content validity and reliability of the survey instrument and interview protocol.

Upholding ethical standards was a paramount consideration, with the researcher obtaining informed consent and prioritizing participant confidentiality and anonymity. Ethical considerations remained central throughout the study, with stringent protocols in place to safeguard the rights and well-being of participants. Informed consent was diligently secured, and measures were implemented to uphold confidentiality and anonymity.

Quantitative data gathered from surveys underwent analysis utilizing the SPSS statistical software, while qualitative data from interviews underwent a thematic analysis. By integrating these findings, a comprehensive interpretation of the research results was achieved.

## Research Findings

### Part 1: Quantitative Analysis

The demographic information of the research participants is shown in Table 1 below.

**Table 1: Demographic Background of Respondents by Frequency and Percentage**

Background	Category	Frequency	Percentage
Gender	Male	28	56.9%
	Female	37	43.1%
State/Region	Kuala Lumpur	12	18.5%
	Selangor	19	29.2%
	Ipoh	4	6.2%
	Penang	9	13.8%
	Johor	21	32.3%
Age	Under 12	10	15.4%
	13-14	29	44.6%
	15-16	24	36.9%
	Over 17	2	3.1%
MYP Grade	Year 7	14	21.5%
	Year 8	7	10.8%
	Year 9	18	27.7.%
	Year 10	15	23%
	Year 11	10	15.4%

## Self-Regulation Among Students

The next section of the questionnaire focuses on assessing the participants' self-regulation by selecting the option that best describes their behaviors and attitudes. The questionnaire consists of 10 items designed to evaluate participants' levels of self-regulation. Responses are scored on a 5-point Likert scale as follows:

*1: Not at all like me ; 2: Slightly like me ; 3: Somewhat like me; 4: Mostly like me ;5: Very much like me*

**Table 2: Percentage of responses regarding self-regulation**

No	Items	1	2	3	4	5
1.	I plan out my projects which I want to complete.	4.6%	7.8%	13.8%	40%	33.8%
2.	If there is an important test coming up, I will create a study plan.	6%	13.8%	21.5%	33.8%	24.6%
3.	I can usually estimate how much time my homework will take to complete.	7.6%	21.5%	35.3%	15.3%	20%
4.	I have trouble remembering all the things that I need to accomplish.	12.3%	9.2%	38.46%	32.3%	15.3%
5.	I do what it takes to get my homework done on time.	4.6%	7.6%	18.4%	32.3%	36.9%
6.	When I get behind on my work, I often give up.	40%	27.6%	16.9%	9.2%	6.1%
7.	I feel a sense of accomplishment when I get everything done on time.	3%	6.1%	13.8%	30.7	46%
8.	I think about how well I've done in the past when I set new goals.	3%	4.6%	12.3%	44.6%	35.3%
9.	When I fail at something, I try to learn from my mistakes.	0%	4.6%	13.8%	38.4%	43%
10.	I keep making the same mistakes over and over again.	27.6%	13.8%	33.8%	18.4%	6.1%

## **Discussion of Results: Self-Regulation Among Students**

The responses from the self-regulation questionnaire provide important insights into the students' abilities to plan, organize, and manage their academic tasks. Each item offers a detailed view of students' strengths and areas for improvement in self-regulation. These findings align with and build upon recent research on student self-regulation in educational settings.

### **1. I plan out my projects which I want to complete:**

A majority of students (73.8%) reported that they regularly plan their projects, indicating effective forward-planning skills, which are critical for academic success. According to Zimmerman and Schunk (2018), planning is one of the essential processes in self-regulated learning that significantly correlates with academic achievement. However, the 12.4% of students who rarely or never plan may benefit from structured interventions to improve their planning and goal-setting abilities.

### **2. If there is an important test coming up, I will create a study plan:**

Around 58.4% of students indicated creating study plans before tests, showing strong organizational tendencies. Previous studies emphasize the importance of study planning in academic performance, with Kadioglu and Kondakci (2020) noting that students who engage in strategic study behaviors often achieve better academic outcomes. Conversely, the 19.8% of students who lack study planning skills may require guidance on developing study routines, a factor that has been shown to improve academic self-efficacy (Panadero, 2017).

### **3. I can usually estimate how much time my homework will take to complete:**

While 35.3% of students demonstrated moderate ability in estimating homework time, the remaining students showed varying degrees of difficulty. Time management is a critical aspect of self-regulation, and the inability to estimate time accurately can lead to stress and procrastination (Wolters & Brady, 2020). Introducing tools such as time-blocking strategies or apps that assist in time management might help students improve this skill.

### **4. I have trouble remembering all the things that I need to accomplish:**

Memory management issues were reported by a significant number of students (70.8%), suggesting difficulties in maintaining a mental checklist of tasks. Studies suggest that students with strong organizational strategies, such as using reminders or digital tools, tend to overcome such challenges more effectively (Dent & Koenka, 2016). This emphasizes the need to teach organizational strategies, which can aid in task prioritization and memory management.

**5. I do what it takes to get my homework done on time:**

The results indicate that most students (69.2%) are diligent in completing their homework on time, suggesting high levels of responsibility and self-discipline. According to Winne (2019), students who exhibit these behaviors typically show higher levels of academic motivation and self-regulation, which contribute positively to learning outcomes. However, for the 30.6% of students who struggle with this, introducing accountability structures, such as peer study groups or regular progress check-ins, could be beneficial.

**6. When I get behind on my work, I often give up:**

Interestingly, 67.6% of students indicated resilience, demonstrating that they do not give up easily when falling behind. This reflects findings by Pekrun et al. (2017) that students with higher emotional regulation skills are less likely to experience task abandonment and tend to exhibit more persistence during setbacks. On the other hand, the 25.3% of students who do give up may benefit from targeted interventions, such as resilience training or emotional support systems within the academic setting.

**7. I feel a sense of accomplishment when I get everything done on time:**

Most students (76.7%) feel a strong sense of accomplishment when completing tasks on time. Research supports the idea that students who feel positive reinforcement from task completion are more likely to engage in self-regulated behaviors and exhibit increased motivation (Zimmerman, 2018). Building on this, educators might consider reinforcing positive task completion with additional forms of acknowledgment, such as praise or awards, to further motivate students.

**8. I think about how well I've done in the past when I set new goals:**

Reflective thinking, reported by 79.9% of students, is a critical aspect of self-regulation. Recent research suggests that students who engage in reflective practices—evaluating past successes and failures—are better equipped to set realistic goals for future tasks (Panadero & Broadbent, 2018). This aligns with the need to encourage reflection in learning environments, possibly through reflective journals or regular self-assessment exercises.

**9. When I fail at something, I try to learn from my mistakes:**

The majority of students (81.4%) demonstrate resilience and a growth mindset by learning from their mistakes, which is consistent with research on the benefits of fostering growth mindsets in educational settings. According to Dweck (2017), students who view failure as an opportunity for learning are more likely to persevere in the face of difficulties. Integrating mindset-building activities into the curriculum can further strengthen these behaviors.

**10. I keep making the same mistakes over and over again:**



While a significant number of students (41.4%) reported making the same mistakes repeatedly, strategies such as targeted feedback and reflective practices could help break these cycles. Zimmerman (2018) suggests that students who receive constructive feedback and are encouraged to engage in metacognitive reflection are more likely to avoid repetitive errors.

The results reveal that most students exhibit strong self-regulation in areas such as planning, time management, and reflective practices. However, gaps in memory management, persistence, and repetitive mistakes indicate areas where additional support may be needed. Interventions such as time management workshops, reflective journaling, and mindset training could be implemented to enhance self-regulation across the student population. These findings align with current research on self-regulation, which suggests that fostering these skills leads to improved academic outcomes (Zimmerman, 2018; Winne, 2019) .

### **Types of Technological Tools Used**

The survey also investigated the types of technological tools employed by MYP learners for English language learning. The findings are categorized into five main areas:

1. **Communication Tools**

ManageBac emerged as the most widely used communication tool, with 38.1% of participants utilizing it. WhatsApp was also popular, with 22.2% of respondents reporting its use for language learning purposes.

2. **Repositories**

YouTube was the preferred repository, with 63.5% of participants leveraging it for language learning. Slide Share and Prezi were less commonly used, indicating a preference for video-based resources over presentations.

3. **Social Networks**

Instagram was the dominant social network among participants, with 55.4% utilizing it for language-related activities. Twitter and Facebook were also utilized, albeit to a lesser extent.

4. **Production and Storage Tools**

Google+ emerged as the primary production and storage tool, with 54% of participants utilizing it. Other tools such as Dropbox and Google Drive were less frequently used, suggesting a preference for integrated platforms.

5. **General Tools**

Participants reported using online dictionaries and plagiarism checkers extensively, highlighting their importance in language learning.

These findings highlight the diverse range of technological tools available to MYP learners and their varying preferences for communication, content consumption, and collaboration.

## **Qualitative Analysis**

### **Semi-Structured Interview Analysis**

As part of the qualitative data collection, semi-structured interviews were conducted with three Malaysian IB school MYP Language and Literature teachers in Selangor. The participants' identities are anonymized for ethical reasons and are referenced as Participant-1 to Participant-3. Thematic analysis was employed to categorize and analyse the interview data based on the three research questions, resulting in three main themes.

#### **1. Participants' Demography**

The demographic details of the interview participants focused on age, gender, ethnicity, years of teaching experience in English language, and years of experience in teaching the IB curriculum. All three participants were MYP language teachers working in an IB school in Selangor, Malaysia.

Participant-1 was a 24-year-old Malaysian Chinese female with three years of teaching experience, including 1.5 years specifically in the IB MYP curriculum. Participant-2, a Persian male, aged 38, had 13 years of teaching experience overall, with less than a year specifically in the IB curriculum. Participant-3, a 31-year-old Malaysian Chinese female, had two years of teaching experience in the IB curriculum and a total of eight years of experience teaching English language in other curricula.

#### **2. Self-Regulation**

Participants were asked to elaborate on their understanding of self-regulation and its presence in their classrooms. They described self-regulation as learners managing their own pace of learning with motivation and dedication (Participant-1), coming up with strategies for learning (Participant-2), and setting their own learning standards and parameters (Participant-3). They acknowledged the presence of self-regulated learners in their classes, with Participant-1 noting that lower MYP students were still adapting to self-regulation.

Regarding how the IB curriculum promotes self-regulated learning, participants highlighted its emphasis on independent learning environments and learner responsibility. They noted that IB encourages learners to take charge of their learning, aligning with the attributes of the IB Learner Profile, such as open-mindedness and knowledgeability.

Strategies employed by self-regulated learners included using different learning styles and approaches (Participant-1), seeking knowledge from various sources (Participant-2), and engaging in independent research and questioning (Participant-3).

#### **3. Technology Integration in Teaching and Learning**

Participants discussed the integration of technology in their lessons and the tools used by self-regulated learners. They utilized basic audio and video tools to stimulate learning senses (Participant-1), laptops and projectors for audiovisual aids (Participant-2), and iPads, laptops, and social media for research and collaboration (Participant-3).

Self-regulated learners used technology for assignments, language games, and accessing additional information. While there was no significant difference between male and female learners in technology use (Participant-1 and Participant-3), Participant-2 observed some variance. Challenges faced included distractions and language proficiency barriers, with teachers providing guidance on technical issues as needed.

In summary, the interviews provided valuable insights into self-regulation and technology integration in MYP language learning, highlighting the importance of learner autonomy and effective use of technological tools in promoting language proficiency and independent learning.

### **Integration of Quantitative and Qualitative Findings**

The interviews provided insights into how MYP teachers perceive the integration of technology and self-regulated learning in their classrooms. Participants reported observing a correlation between students' self-regulatory behaviours and their use of technology for language learning. For example, teachers noted that self-regulated learners demonstrated greater initiative in seeking out resources and engaging in collaborative activities facilitated by technology. Additionally, teachers identified challenges such as digital distractions and language proficiency barriers that impact students' ability to effectively integrate technology into their learning process.

Overall, the quantitative and qualitative findings complement each other, offering a comprehensive understanding of the complex dynamics between self-regulation, technology, and language learning in the MYP context. These insights can inform the development of targeted interventions and pedagogical strategies to support students' holistic development as self-regulated learners in the digital age.

### **Conclusion**

In this study, the impact of technology integration among self-regulated learners in IB MYP language and literature classrooms was investigated. The research questions focused on understanding how learners self-regulate to integrate technology, what kinds of technological tools they use, and how different technological applications impact their English language learning.

The findings indicate that a majority of MYP students are self-regulated learners, employing strategies such as goal-setting, memory techniques, and metacognition to achieve language learning goals. As they progress through the MYP years, students demonstrate increasing proficiency in using research techniques and technological tools such as ManageBac, BeEd, and Easybib to store and access content materials, enhancing their understanding and retention of concepts.

Technological tools utilized by self-regulated learners encompass a range of advanced applications beyond traditional office software, with authenticated websites, multimedia resources, and collaborative platforms being commonly utilized. While limitations in survey design may have restricted the exploration of emerging apps and software, the data suggests age-related patterns in tool preferences among MYP students.

Regarding the impact of technology integration, positive outcomes include increased motivation, engagement, and opportunities for communication with native speakers. However, challenges

such as technical malfunctions, student attitudes toward recreational technology use, and teachers' limited technological proficiency were noted as impediments to effective integration.

Despite these challenges, the overall findings underscore the potential of technology to enhance language learning experiences for self-regulated learners. Addressing issues such as teacher training, technological infrastructure, and student attitudes can further optimize the benefits of technology integration in MYP language and literature education. By leveraging technology effectively, educators can empower self-regulated learners to achieve greater success in language acquisition and proficiency.

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