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Exploring the challenges of self-directed blended learning

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Abstract
COVID-19 pandemic had a marked impact on the educational system all over the world. The pandemic has exposed students to remote learning environments and has accelerated the adoption and prominence of online education among students. During this period, some students recognized the potential benefits of online learning and as the pandemic was over the students started to incorporate online learning into their daily routine after returning back from school and thus participating in a self-directed blended learning approach. But as the popular saying goes that every coin has two sides, similarly every approach has both benefits and challenges. The target group of the study was the students of class IX and class XI. A study was conducted on 224 students from four selected Kendriya Vidyalaya schools through stratified sampling, under Sonitpur district, Assam, India This paper discusses the challenges of self-directed blended learning. Frequency, percentage, and composite mean were calculated for this purpose. Four dimensions were considered to evaluate the challenges of self-directed blended learning i.e., technical, social, physical, and financial dimensions. It was found that physical challenges were the highest ranked of all the four considered dimensions of challenges.

Keywords: Self-directed blended learning, challenges, technical challenges, social challenges, physical challenges, and financial challenges

Introduction
The way we learn and acquire knowledge has been altered as a result of technology. 2020 has been a striking illustration of the shift that has taken place in education. A total of 190 countries have undergone disruption in formal teaching and learning impacting around 320 million students in India and 1.5 billion students worldwide.

During the outbreak of the COVID-19 Pandemic, all educational institutions were shut down since March 16, 2020, and students all over the country were compelled to learn virtually from their home environment. The strategy of promoting online education was adopted by the Government of India (Times of India). During that period, the Government of India even launched various free online education platforms including Diksha, SWAYAM, e-Patshala, and many more. When all the educational institutions were again reopened in the post-pandemic situation, it was found that students were more attracted to and comfortable in the blended learning environment (Sharma, 2021) [22]. There are four fundamental models of blended learning which are the rotation model, flex model, enriched virtual model, and self-blend model or self-directed blended learning (US Department of Education, 2009 and Christensen Institute, 2016). This paper will mainly be focusing on self-directed blended learning. Self-directed blended learning is also referred to the as self-blend approach or the A La Carte model. It is defined as that form of blended learning where students supplement their traditional, face-to-face, in-school learning with online courses chosen by them and carried on from their home environment or any other comfortable environment outside the formal classroom setting. In addition to face-to-face classroom learning, students make use of various online apps or social media sites in order to supplement their classroom learning and gain additional insight into the topic. Every student may not use the same online course to supplement their learning. The students have full freedom to choose the course they want to take. The school is not responsible for financing the students' online learning. It is an individualistic decision of the students based on their needs and interests. For this method of blended learning to be successful, students must be highly self-motivated, have good time management and critical thinking skills. While blending conventional learning with technology-based learning it should be taken care offline learning is not overlooked and given due weightage as virtual learning can supplement but never replace offline learning.

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The blending of technology-based learning with conventional learning should be in equilibrium. Self-directed blended learning is a learning approach that intends to supplement offline learning with online learning and not substitute offline learning. But as the popular saying goes that every coin has two sides, similarly every approach has both benefits and challenges, and so, self-directed blended learning has its own opportunities and challenges.

Review of literature
Adedoyin and Soykan (2023) [1] conducted a study to know the challenges and opportunities of online learning. The study findings revealed that online learning during COVID-19 had its opportunities as well as many challenges.
Rizvi and Nabi (2021) [20] in their study found insufficient bandwidth and bad network connectivity were discovered to be serious hindrances the student comes across while participating in the online modality. Some of the other difficulties included an inadequate home setting for attending online classes, a sense of isolation and demotivation due to the lack of face-to-face connection, and exposure of the students to excessive screen timing, which caused weariness among them. Active online means of learning, such as live faculty lectures and discussions conducted live by faculty were most favored, while passive methods of learning, such as online certification courses through education portals such as Swayam, Coursera, and Udemy, were least liked. The study findings highlighted that student-faculty engagement provided higher satisfaction than student-student interaction.
Barrot et al. (2021) [5] conducted a study to know the challenges encountered by learners in the online mode of learning during the COVID-19 pandemic. The study findings revealed that the students' greatest obstacle was related to their learning environment at home, whereas the least challenge faced by them were technical knowledge and competency. The evidence also suggested that the COVID-19 pandemic had the biggest impact on the quality of the learning experience and the mental health of students.
Singhal (2021) [24] in the study findings divulged some of the obstacles of blended learning, which were a rising digital divide among students, a negative influence on social and emotional health, generational differences in technology use, and the use of suitable pedagogy.
Jaradat and Ajlouni (2021) [15] conducted a study on undergraduate students, and the study findings elicited that some of the challenges faced by students on online platforms were anxiety and stress, inconsistent internet connections, inadequate service of the e-learning platforms, a lack of information and communication technology skills among both learners and teachers, poor time management abilities of the students, and distractions
Hussain and Barzani (2021) [14] conducted a study to know the students' perception of online learning during the COVID-19 pandemic. The study findings revealed that some of the hurdles students face in the online learning platform included inconsistent internet connections, frequent power cuts, issues with time management, concentration difficulties, and opening cameras due to social issues.
Conducted a study that examines the measures taken by provincial ministries and publicly funded school boards to establish online learning platforms in order to prevent disruptions to student learning. However, it is important to consider the potential negative consequences of online learning for marginalized students, particularly those who were already disadvantaged in traditional public school settings. The issue of the digital divide may further isolate these students, exacerbating their marginalization. This commentary underscores the need for educators at all levels to be adequately prepared for the potentially detrimental effects on indigenous students' learning and academic achievement in post-pandemic public schools and classrooms. Given the complex nature of these circumstances, which have resulted in intertwined layers of marginalization for indigenous students, it is crucial that preparation for these realities is both current and retrospective.
Rasheed et al. (2020) [19] conducted a study to know the challenges of the online mode of blended learning and the findings stated that the main challenges on the part of students included self-regulation issues and difficulties in learning with technologies.
Ferri et al. (2020) [12] in their study findings revealed that the technological issues of blended learning were primarily connected to the unpredictability of internet connectivity and the lack of requisite electronic gadgets for many students. The pedagogical challenges were primarily associated with teachers' and learners' lack of digital skills, the lack of structured content versus the abundance of online resources, learners' lack of interactivity and motivation, and teachers' lack of social and cognitive presence (the ability to construct meaning through sustained communication within a community of inquiry). The social issues were mostly due to a loss of human engagement between teachers and students, as well as among the students themselves, a lack of physical spaces at home to receive lessons, and a lack of support from parents who commonly work remotely in the same spaces.
Belay (2020) [6] conducted a study to know the educational inequalities of distance learning faced by rural inhabitants. The findings highlight that there are numerous disparities that rural pupils face in comparison to metropolitan students. Students are homogenized by the accessible remote learning programs, which might lead to educational inequity.
Horo et al. (2020) [13] through their study revealed that the biggest problem for online learning is the constraint of internet connection in families, as the number of children in the family may exceed the number of internet connections. Another issue that has emerged is that students at private schools can afford the pricey internet connection, while students in public schools may not.
Adnan and Anwar (2020) [2] conducted research to savvy the perception of students towards online learning after the COVID-19 pandemic and the research findings revealed that online learning cannot generate the intended effects in underdeveloped nations such as Pakistan, where the great majority of students were unable to use the internet due to technical and financial constraints.
Alam and Agarwal (2020) [3] conducted a study to know the opportunities and challenges of blended learning, and the study findings discovered that combing both online and offline platforms of learning has its own challenges and opportunities.
Opeyemi et al. (2017) [18] conducted a study to know the perception of students towards blended learning and the study's findings discerned that the blended learning method benefits students a lot, but that inadequate power supply, internet connection problems, and a lack of computer operating skill were some of the barriers to the effective use of blended learning in distance education.
Kearns (2012) [16] in the study findings has brought to light

that assessment of student learning is a critical component of instruction and assessing student learning in online environments presents unique problems and opportunities. Challenges of online learning arouses as a result of the impact of physical distance between the instructor and the students, adaptations to the necessity of using technology to communicate with students, workload and time management issues of the students, and the ongoing need to collect and provide feedback on a variety of assessment data.

Alebaikan and Troudi (2010) [4] have conducted research to know the challenges of blended learning, and the study findings disseminated that difficulties in adequately managing time is one of the crucial challenges of the blended learning approach.

Research design

An exploratory research design is a research procedure that allows researchers to investigate unfamiliar topics. With the help of this research design, one can avail a better understanding of a particular problem or phenomenon even if it may not always produce conclusive results. The study's design is exploratory as it explores the challenges of self-directed blended learning

Materials and Methods

The study was carried out in four selected Kendriya Vidyalaya schools under the Balipara block of Sonitpur District, Assam, India. Sonitpur district was chosen at the convenience of the researcher. The purpose behind choosing balipara block was that this block has the highest number of schools, as the target group of the study was the students of class IX and class XI because the student of these standards was approaching and thus exposes themselves to different learning platform in order to gain additional insight on a desired content or topic. Since most of the commonly used online learning apps prefer English and Hindi as their primary language of instruction and so does the C.B.S.E curriculum, whereas in contrast most of the government schools of the state board use regional language as the medium of instruction and communication, so the researcher desired to opt for C.B.S.E schools. To make the heterogeneous school population into a homogeneous sample by adopting a stratified sampling method Kendriya Vidyalaya schools were selected for making strata, as it predominately uses English and Hindi as their primary language of instruction and also contains students from diverse economic backgrounds. A sample size of two-hundred and twenty-four was calculated using Cochran's formula for finite population (sample size determination formula). A self-constructed questionnaire was distributed among the students in order to explore the challenges of self-directed blended learning.

Results and Discussion

Table 6.1: Distribution of the technical challenges faced by the respondents while practicing self-directed blended learning

Challenges										
Technical Challenges	**Strong Agree**		**Agree**		**Neutral**		**Disagree**		**Strongly Disagree**	
	F	**%**	**F**	**P**	**F**	**%**	**F**	**%**	**F**	**%**
Having poor internet connectivity in the locality	90	40.2	74	33	3	1.34	32	14.29	25	11.16
Having limited technical knowledge to operate online apps efficiently	80	35.7	76	33.9	8	3.57	38	16.96	22	9.82
Not having sufficient device for online learning	16	7.14	34	15.2	6	2.68	68	30.34	100	44.64
Facing difficulties in managing online courses	102	45.5	68	30.4	4	1.79	35	15.63	15	6.7

F= Frequency, % = Percentage

Table 6.1 illustrated the respondents' information based on the technical challenges faced by them while practicing self-directed blended learning. It is evident from the results that most of the respondents (40.2%) strongly agreed that they had poor internet connectivity in their locality. This is owing to the fact that our personal internet connection may have lower bandwidth and a patchy connection than the institutional internet connection, which disturbs the learning experience due to video, audio, and connection issues. According to Rizvi and Nabi (2021) [20], insufficient bandwidth and bad network connectivity were serious hindrances to virtual learning.

The results witnessed that most of the students (35.7%) have insufficient technical skills to use online apps effectively. This could be because some learners aren't up to date on the latest technology, which can be quite annoying for them and, at worst, completely deplete their training experience, supported by the findings of Rasheed et al. (2020) [19] who concluded that one of the main challenges of online learning in part of students include difficulties with learning technologies. The target group of the study was the students of Class IX and Class XI, which fall under Gen Z (Zoomers). Though according to the research of this generation is very sound in technical skills but in the current study it was found that the majority of the respondents strongly agreed that they have insufficient technical skills to use online apps effectively.

The results denoted that for a major proportion of students not having sufficient devices for online learning is not a challenge. This may pertain to the growing income status of the working-class population of the country.

The results showed that most of the students (45.5%) strongly agreed that they face problems in the technical management of online courses. This could be due to the time-consuming and difficult registration, sign-in, and log-in procedures required for enrolment in online courses. Many online courses also require students to submit work by uploading a document and the learners are also required to compress the size of the documents, thus those who lack appropriate digital literacy may struggle to manage the online learning process smoothly.

Table 6.2: Distribution of the social challenges faced by the respondents while practicing self-directed blended learning

Social Challenges	Strong Agree		Agree		Neutral		Disagree		Strongly Disagree	
	F	%	F	%	F	%	F	%	F	%
Sometimes willing to skipping online classes	79	35.3	110	49.1	11	4.91	18	8.04	6	2.68
Having less accountability in online learning	167	74.6	48	21.4	2	0.89	2	0.89	5	2.23
Getting feedback is difficult in online learning	149	66.5	70	31.2	1	0.45	2	0.89	2	0.89
Coming across online bullying in self-blend mode	2	0.89	3	1.34	1	0.45	50	22.6	168	75
Feeling hesitant to interact with teachers in both offline and online classroom	83	38.8	92	41	14	6.25	25	11.2	10	4.46

F= Frequency, %= Percentage

The results of Table 6.2 implied that most of the students (49.1%) agreed that they sometimes feel like skipping online classes. This may be due to the fact that while participating in online learning students have to seat in one place for long hours which makes them tired, leads to a monotonous lifestyle, and makes them lethargic further more making them skip online classes sometimes. According to the study of Yudkko *et al.,* students perceive that hybrid courses have a detrimental impact on attendance.

The results revealed that the majority of students (74.6%) strongly agreed that have reduced accountability in online classes. This is considered as a challenge may be due to the reason that if the student is not motivated enough or does not have self-discipline, they cannot successfully complete the online course because in online learning there is no one to keep track on students' behavior or performance in their study found that students show reduced accountability and increased academic dishonesty in online learning. Snapp and Simon (2005) found in their study that there was reduced interpersonal accountability between teachers and students in the online component of blended learning.

The results stipulated that the majority of respondents (66.5%) strongly agreed that getting feedback is difficult in online classes. Reduced accountability is a challenge in the online component of self-directed blended learning because students undertake the self-blend approach to bridge up the limitations of face-to-face learning, so successful establishment of rapport with the online teachers and getting feedback from them is very important, but getting feedback may be difficult in the online component of Self-Directed Blended Learning, similar findings were reported by Baum and McPherson (2019) that the main problem online learning is the lack of interpersonal interaction between the students and the teachers. This may be because a large number of students are enrolled in virtual classes so one-to-one conversation with every student is not possible.

The results signified that the majority of students (75%) do not face cyberbullying while participating in the online component of self-directed blended learning. This might be due to the fact that while participating in online learning teachers play the role of lecturer and students play the role of note-taker from a remote/distant location there is not much chance of student-student conversation.

The results divulged that most of the students (41%) agreed that they hesitate to interact with their teachers in traditional and virtual classrooms. This might be due to the shy personality of the individual or because of an inefficient rapport between the teacher and student, aided by the findings of Ferri *et al.* (2020) [12] and Barzani (2021) [14] that the inability of the teachers to create social and cognitive presence and reluctant to open cameras are some of the major social issues for students in online learning.

Table 6.3: Distribution of the physical challenges faced by respondents while practicing self-directed blended learning

Physical Challenges	Strong Agree		Agree		Neutral		Disagree		Strongly Disagree	
	F	%	F	%	F	%	F	%	F	%
Facing difficulties in managing time for both offline classes	146	65.2	66	29.5	2	0.89	9	4.02	1	0.45
Getting distracted during online learning	127	56.7	79	35.3	6	2.68	11	4.91	1	0.45
Getting fatigue, headache and eye strain due to Self-Directed Blended Learning	170	75.9	50	22.3	1	0.45	2	0.89	1	0.45
Developing bad sitting postures due to increased online learning time	120	53.6	93	41.5	2	0.89	3	1.34	6	2.68
Getting distracted due to noise in the home and neighborhood during online classes	96	42.9	89	39.7	7	3.13	25	11.2	7	3.13
Having less contact with printed materials due to too much digital learning	148	66.1	69	30.8	5	2.23	1	0.45	1	0.45
Depending too much on the online platform	172	76.8	46	20.5	2	0.89	3	1.34	1	0.45

F= Frequency, %= Percentage

The results of Table 6.3 delineated that the majority of students (65.2%) faced difficulties in managing time for both offline and online learning. This may be because the self-blend approach of learning supplements the students-to-do list with additional and time-consuming activities and courses in addition to daily conventional classes. Similar findings were also marked in the study of Kearns (2012) [16], excessive workload and time management issues are the major challenges of online learning.

The results outlined that the majority of students (56.7%) strongly agreed that they were distracted while participating in the online component of self-directed blended learning. This could be because regular notifications from blogs, videos, and other social media platforms can divert students' attention away from their lessons and tasks. And once they are engrossed by the notifications, it is very tempting for them to begin aimlessly browsing through these platforms. This finding may be seen in line with the study of Jaradat and Ajlouni (2021) [15] that distraction is one of the major drawbacks of the online learning platform

The results manifested that the majority of students (75.9%) strongly agreed that increased screen timing is deteriorating their physical health. This may be due to the reason that because, both online and offline class schedules are almost the same, i.e., around six to seven hours per day, and continuous screen timing for such a long time takes a toll on students'

health and leads to frequent fatigue, headache, and eye strain in them, underpinned by the findings of according to which increase in online learning among students is negatively impacting their eyesight and leading to backache and many more.

The results implied that the majority of the students (53%) have developed bad sitting postures due to increased online learning time. This may be because while learning online students tend to sit in one place for hours, few may also not follow the traditional desk-table study posture and may read while lying down on the bed all these promote bad study postures among learners. The findings are in line with the study of that increased online among students during and after the COVID-19 pandemic is resulting in bad study posture by them due to increased screen timing.

The results arrayed that most of the students (42.9%) are distracted by noise in their homes and neighborhoods during online lectures. This could be because the respondents were city dwellers and might be constantly exposed to noise. The findings can be backed by the study of Rizvi and Nabi (2021) [20] that an inadequate home setting is a challenge for online learning. Ferri et al. (2020) [12], in their study, stated that a lack of physical space at home to receive lessons and a lack of support from parents who commonly work remotely in the same spaces is a major challenge for the online learning platform.

The results depict that the majority of students (66.1%) strongly agreed that they have less contact with printed materials as a result of too much digital learning. This may be due to the fact that students prefer to learn digitally rather than on paper. One of today's major issues is that, as a result of their excessive use of technology, individuals have lost touch with books and printed materials, becoming nearly exclusively reliant on search engines. For example, rather of consulting a dictionary or an encyclopedia to determine the meaning of a word, they prefer to Google it. However, total comprehension had been higher for print reading than for digital reading. It can be supported in accordance with the study of that reading printed materials rather than reading digitally improves comprehension.

The results highlight that the majority of students (76.8%) strongly agreed that they depend too much on the online platform. This can be considered as a challenge of the online component of self-directed blended learning because excessive reliance on online platforms might be detrimental and it is quite easy for students in an online learning environment to rely on the internet or any artificial intelligence program. Students may opt to replicate work from other sources and submit it as their own. This encourages kids to take shortcuts, making them less innovative. Therefore, in order to make the self-blend approach to be successful for students' self-regulation is very important, which can be reinforced in accordance with the findings of Rasheed et al. 2020 [19] that one of the main challenges in part of students include self-regulation issues in online component of self-directed blended learning student responsible for regulating their own behavior so that the new approach of learning does not degrade their overall development.

Table 6.4: Distribution of the financial challenges faced by respondents while practicing self-directed blended learning

Challenges										
Financial Challenges	**Strong Agree**		**Agree**		**Neutral**		**Disagree**		**Strongly Disagree**	
	F	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**
Online courses are costly	168	75	46	20.54	1	0.45	1	0.45	8	3.57
Parents face difficulties in managing both offline and online course fees	26	11.6	33	14.73	10	4.46	98	43.8	57	25.45
Facing some financial problems due to large family size	34	15.2	44	19.64	6	2.68	72	32.1	68	30.36
Not have access to low-cost online learning apps	17	7.59	44	19.64	4	1.79	67	27.5	92	41.1

F= Frequency, %= Percentage

The results of Table 6.4 marked that the majority of students (75%) of the students strongly agreed that online courses were costly. This may be because as in self-directed blended learning the school authority is not responsible for financing the online courses undertaken by the students, it is the responsibility of the students' parents and family to pay for their online learning component. According to some of the most popular online educational apps like Byzus, Unacademy, etc., but these learning apps are quite costly.

Table 6.5: Ranking of the different dimensions of challenges in self-directed blended learning as per their composite mean

Dimensions	Composite Mean	Rank
Technical	4.012	3
Social	5.194	2
Physical	5.505	1
Financial	2.057	4

The results reveal that the majority of the students' parents had no difficulty paying both offline and online course fees. This could be because the sample was drawn from Kendriya Vidyalaya, which charges students very little, and there are many government-sponsored free online learning apps, which the students can make use of in order to facilitate their studies.

The results indicated that the majority of the students do not face financial problems due to their large family size. This may be due to the reason that because of urbanization many joint families are dissolving and embracing the nuclear family structure.

The results of Table 6.5 illustrated that among all four dimensions of challenges, physical challenges are the highest ranked (with a composite mean of 5.505). This may be because in self-directed blended learning, the major constraint for students is to efficiently manage time for both offline and online modes of learning. This approach also calls for continuously sitting near the online device for long hours which may lead to eye strain, headache, and fatigue. According to the findings of Alebaikan and Troudi (2010) [4], one of the major challenges of blended learning is adequate time management by the students. According to the findings of the same study used above, the increase in online learning among students is negatively impacting their eyesight and leading to backache and many more.

Conclusion
It can be concluded from the study that out of all the four concerned dimensions of challenges, the physical dimension is the highest ranked. It was observed that the majority of

students had a strong agreement (76.8%) that they depend too much on online learning platforms which may be attributed to the reason that too much dependence on online learning platforms may eventually make the students less innovative and create a detrimental impact on them. It was also found that the majority of students (75.9%) strongly agreed that the self-blend approach is having a negative on their health which might be related to the reason that increased screen timing may lead to fatigue, eye strain, and headache.

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