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The Perception of Teachers and Students on the Utilisation of Artificial Intelligence in the Educational System in Mezam Division of Cameroon

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Abstract

Artificial Intelligence is making headlines at conferences and seminars across various fields and sectors, such as commerce, nutrition, education, and health. Given the applications of Artificial Intelligence in the teaching and learning process, there has been debate over whether it is a valuable technology, considering the ramifications surrounding how educators perceive and apply it. Today, many priorities for improving teaching and learning remain unaddressed, leading some educators to explore technology-enhanced approaches that are safe, effective, and scalable in meeting these priorities. Naturally, educators are concerned that rapid technological advances in everyday life could provide solutions. This study aimed to investigate whether Artificial Intelligence in the educational system in the Mezam Division poses a threat or offers an advantage. The research design was descriptive, focusing on the Mezam Division of the North West Region of Cameroon. The population consisted of 1,200 English language and Mathematics teachers and 20,000 students from schools in the Mezam Division. A multistage sampling technique was employed. One school in the urban area, where students and teachers have access to computers, smartphones, and electricity, was purposively selected. The findings revealed a significant difference in how English Language and Mathematics teachers perceive the application of Artificial Intelligence in teaching and learning. While Mathematics teachers regarded it as an advantage, English language teachers considered it a threat. Similarly, a significant difference was also

observed in the perceptions of students and teachers regarding the application of Artificial Intelligence in education. It can be concluded that the views of teachers and students on the application of Artificial Intelligence in the educational system in the Mezam Division remain inconclusive. Substantial sensitisation efforts are therefore necessary to align these stakeholders with the demands of new technological advancements. Based on these findings, it is recommended that teachers and students explore the possibilities presented by Artificial Intelligence to stay current with modern technologies and benefit from the myriad opportunities this technology provides.

Keywords: Artificial Intelligence, Educational System, Mathematics, English language

INTRODUCTION

In this era of globalisation and advanced technologies, the zeal to keep higher with contemporary technologies by most stakeholders becomes more inherent. There has been an evolution from computer-based technologies to digitalised or internet platforms in all spheres of society, like banking, marketing, health and education, among others. Researchers in the education world-wide have explored the effects of these different technologies in improving the achievement and other academic outcomes and found that these technologies have had significant positive effects on students' academic performance. The results of a study conducted by Ezenwafor, Chukwutem & Eze (2020) in Nigeria indicated that students taught auto-mechanics using a CAI package had a significantly higher achievement and developed greater interest than those taught using the lecture/demonstration teaching method (L/DTM). In another study by Cheptirim, Maina & Ng'ena (2023) in Kenya, the findings revealed that CBI improved learners' academic achievement in agriculture. Gat, Abdurachman, Warganegara, and Kosasih (2021) in their study on the influence of online learning on students' academic achievement: mediated by collaborative learning, found out that there was a positive impact on students' academic achievement, albeit with less significance. In a study conducted by Agwa

(2022) on the effect of online learning platforms on students' performance in higher institutions in Cameroon, the analysis of data demonstrated that the presence and guidance by online instructors on the content of work, and their interactions with the students, increased the students' online performance significantly.

Despite these positive effects of the technology-driven instructions on students' academic outcomes, there is a need to consider how well teachers are utilising these technologies. While some teachers in the division may not be interested in Artificial Intelligence, the students, on the other hand, are excited about it as they see themselves as digital natives and explore these technologies for social benefits, for the most part, rather than for academic motives. The quest for more advanced technologies, given the trends of events following the outbreak of the Coronavirus, necessitated the search and application of a more innovative technology that could meet the demands of contemporary society, such as Artificial Intelligence (AI).

AI is a household name in the classrooms today, both in the secondary and university levels, due to the widespread usage of this technology following the outbreak of the coronavirus. Although this technology was adequately used in the West during that period and it is still increasingly being applied there, it is still a dream to come true for most African institutions in general and the Cameroonian institutions in particular. Some factors contribute to the unavailability and inaccessibility of Artificial Intelligence to institutions in the African contemporary communities. Some of these factors are a lack of information or know-how on the application of this technology, misconceptions on the opportunities afforded by this technology and perceptions of stakeholders on the actual performance of Artificial Intelligence to give a place for human performance, among others. Coursera Staff (2024) and Ergen (2019) define Artificial Intelligence as a broader field of computer systems

that enables machines to carry out tasks that human beings would normally perform, such as perceiving, deciphering, identifying patterns, making decisions, and interacting. Although the term is commonly used to describe a range of different technologies in use today, many disagree on whether these technologies constitute Artificial Intelligence. Instead, some argue that much of the technologies used in the real world today constitute highly advanced machine learning that is simply a first step towards true Artificial Intelligence, or "General Artificial Intelligence" (GAI). Yet, despite the many philosophical disagreements on whether "true" intelligent machines exist with the use of Artificial Intelligence today, some references are made to a suite of machine learning-powered technologies, such as the Chat GPT or computer vision, that enable machines to perform tasks that previously only humans could do like generating written content, steering a car, or analyzing data. The following paragraph will examine the body of literature on Artificial Intelligence to show the convergences and divergences between this study and previous studies.

Literature review

There is no doubt that in this modern world, integrating AI technology is growing rapidly in all sectors of life, without excluding education. Almasri (2024) emphasised that Artificial Intelligence in education (AIEd) is an evolving interdisciplinary arena incorporating AI technologies to renovate and enhance teaching and learning environments. Zawacki-Richter, Marín, Bond, & Gouverneur (2019), in their systematic assessment of AI applications in higher education, focused on the vital role that teachers can play in this domain. Their results suggest how important it is to explore and understand the needs and perceptions of teachers when integrating these technologies into teaching-learning settings. Likewise, Xu and Ouyang (2022) employed a systematic literature review method to identify and summarise research studies and classify the roles of AI in the educational system. Their findings advocate that the use of AI is within the education environment to support its role in three ways: (1) AI

as a new subject, (2) AI as an immediate mediator, and AI as a complementary aid to impact the teacher-learner, learner-self, and learner-learner relationships. Adlawan (2024) viewed AI as offering assistance and making our day-to-day tasks lighter. Other advantages of AI discussed by the same author include: improving student engagement, enhancing student performance, cost-effective learning and continuous evaluation and improvement in the long run. Despite these advantages advanced by Adlawan (2024), it was equally observed by the same researcher that some disadvantages abound with the application of AI. The pros included the threat to job security, a dehumanised learning experience, which was costly to implement for teachers, and dependence on technology. Information obtained from social media has created some doubts and fears among many stakeholders about how Artificial Intelligence could positively impact them to make informed decisions on this technology. It is even more devastating for many teachers in Cameroon who depend solely on their monthly salaries and will not want to avoid anything that could jeopardise their jobs. Teachers have hardly come to terms with the challenges of Computer-Assisted Instruction and Online Learning Platforms when the huddles of Artificial Intelligence. In like manner, students on their part tend to consider the long-term effect after studies, like getting some white-collar jobs and may not be comfortable with the threats posed by Artificial Intelligence technology, even though they derive some short-term benefits using it in their searches.

Artificial Intelligence is inherently gaining ground in almost all spheres of life, including education. This has necessitated the governments of some nations to infuse this technology into their system. The German government instituted an Artificial Intelligence strategy for spreading Artificial Intelligence education in the country (Lindner & Romeike, 2019). In another intervention, a report published in the U.S.A. by the Bureau of Educational Technology in 2023 requested the provision of AI education opportunities to students at local, State and Federal levels (Cardona, Rodriguez, Ishmael, 2023). The Ministry of National Education of the

Republic of Turkey likewise launched the MEB Artificial Intelligence application in 2020 due to the increasing need for digitalisation in education after COVID-19 and to evaluate how well Artificial Intelligence can be effective in the educational sector. The Board of Education in 2023 published a report on the 21st century skills and values whereby the targeted skills for students were highlighted and classified under seven headings as follows: social and emotional skills, language and communication skills, higher order thinking skills, self-management skills, learning skills, study skills and literacy skills (Mustafa, 2024). Information and communication Technology constitutes the first of the nine subthemes under literacy skills. The focus of this theme is for students to be able to decide on the appropriate technologies in the processes of searching, finding, collecting, managing, transforming and evaluating information to use these technologies effectively, efficiently, productively, legally and ethically per their purpose (Turel, Simsek, Sengui Vautier, Simsek, Kiziltepe, 2023). The internet, digital communication tools, social media, space exploration, genetic science, and renewable energy are some of the most important technologies in this era. Similarly, Artificial Intelligence, being one of the most important and trending technological innovations of these modern times, is captivating every individual irrespective of their age. Teachers' professional expectations are changing from teaching reading, writing and mathematics to transferring many contemporary approaches to students' social development, personal development, arts education, sports education, STEM education, coding education and modern learning models to their students to meet the demands of the present age. Some researchers have sought to investigate how teachers view the application of Artificial Intelligence in the educational system. In a review, Sheeba (2022) indicated that modern technology in teaching could be embraced to enhance knowledge in the present competitive world. The rapid increase in the use of AI requires that educators and students have a basic understanding of AI and data

to be able to engage positively, critically and to exploit its full potential. In another study, Moura and Carvalho (2023) found that the majority (90%) of their respondents who were teachers reported using digital technologies in their practices. However, when it comes to using AI and chatbot tools in their classes, they have no experience (100%). Another finding from the study indicated that 90% of the respondents expressed a desire for AI training for several reasons: to acquire solid knowledge in the field (01); to learn and develop new strategies and assessment tools to enhance their teaching practice without diminishing the quality of learning (03); to comprehend the functionalities of AI and know how to effectively use them (05); and to dispel any fears and concerns (06). The study also showed that Artificial Intelligence applications help teachers in saving their time and energy, facilitating skill development and innovative teaching and learning. In a study to examine teachers' views on the use of Artificial Intelligence (AI) in education by Mustafa (2024), it was found that overall, teachers possess a positive outlook on the use of AI in education, although some negative perspectives also emerged. These studies considered teachers' perceptions and did not take students' views. Also, studies on AI in education are rare in Cameroon, and the reviewed studies have shown inconsistencies in the perceptions of teachers, with some having a positive approach and others a negative approach to it. Given the advancements in technology and the drive to be current with the new world systems, there is need to consider how teachers and students perceive the application of Artificial Intelligence with the growing interest in the teaching and learning process that informs the choice of investigating the perceptions of teachers and students on the application of Artificial Intelligence in the educational system.

Statement of the Problem

Educators over the years have sought to make the teaching and learning process more impactful and engaging to achieve more sustainable objectives. The trend has been for teachers to deliver their lessons using

some instructional strategies that they have been exposed to during their studentship or from training institutions, books, seminars or workshops. The outcomes on the academic achievement, attitudes and interests of students have not been very desirable. Some instructional strategies that have been employed include the lecture method, constructivism, scaffolding, peer tutoring, computer-based learning and some online learning platforms, among others. Education stakeholders continue to strive for better teaching and learning experiences to meet the demands of the changing world and the era of digitalisation. There have been challenges on the part of the teachers due to their inability to cope with the demands of the students who have embraced modern technologies and want to explore all the opportunities these technologies offer. While the students are becoming digital natives, the teachers turn to remain conservative as they regard themselves as being born before computers and so do not see the relevance of acquiring the skills needed to use these technologies despite the continuous advancement in the technologies. Given the most trending technology that is Artificial Intelligence, whereby computers and machines are enabled to simulate human learning, comprehension, problem solving, decision making, and creativity, some autonomous teachers are worried that this will lead to them losing their jobs. This has compounded the situation for teachers as students even use this technology to do most searches during the class or tests, and sometimes students think the teachers are not relevant. This problem informed the choice of this study, which questioned whether Artificial Intelligence is an advantage or a threat in the educational system in Mezam. This study, therefore, seeks to unravel *the perception of mathematics and English Language teachers on the application of* Artificial Intelligence as an advantage or a threat in the educational system in Mezam Division in particular and Cameroon in general.

Research Hypotheses

This study was guided by the following hypotheses:

Ho_1: There is no significant difference between the mean scores of Mathematics and English Language teachers on the application of Artificial Intelligence in the educational system in Mezam Division.

Ho_2: There is no significant difference between the mean scores of students and teachers on the application of Artificial Intelligence in the educational system in the Mezam Division.

Ha_1: There is a significant difference between the mean scores of mathematics and English Language teachers on the application of Artificial Intelligence in the educational system in the Mezam Division.

Ha_2: There is a significant difference between the mean scores of students and English Language teachers on the application of Artificial Intelligence in the educational system in the Mezam Division.

Methodology

The method employed for the study was descriptive. The study was guided by two research questions and two hypotheses. The area of study was the Mezam Division of the North West Region of Cameroon. The population of the study was all the English Language and Mathematics teachers, comprising 1200 teachers and the secondary school students, comprising 20000 students in the division. The sampling technique was multistage. One school in the urban setting where students and teachers have access to computers, smartphones, and electricity was purposively sampled. Then, by simple balloting, ten urban schools were sampled for the study. The students of the two form four and five classes, numbering 336, were sampled using balloting. The sample of the teachers was all the English and Mathematics teachers in the sampled schools. Data was

collected using the Students and Teachers Artificial Intelligence Questionnaire (STAIQ), having a reliability coefficient of 0.77. The research questions were answered using descriptive statistics, *while a t-test was used to test the hypotheses at a 0.05 level of significance. Any item with a mean of 2.5 and above was regarded as agreed, while below was regarded as disagreed.*

Results

Research Question One

1. *What is the perception of mathematics and English Language teachers on the application of* Artificial Intelligence as an advantage or a threat in the educational system in Mezam?

Table 1

1. **Mean perceptions and Standard Deviation showing the perception of mathematics and English Language teachers on the** *application of* **Artificial Intelligence in the educational system in Mezam**.

S/N	Item Statement	Mathematics Teachers N = 25 $\bar{X}_1$	SD_1	DEC$_1$	English Language Teachers N = 45 $\bar{X}_2$	SD_2	DEC$_2$
1	As a teacher, I appreciate students using Artificial Intelligence during lessons.	2.25	1.07	D	2.39	1.01	D

2	Students should use Artificial Intelligence only in their homes.	2.55	1.18	A	2.67	0.97	A
3	Artificial Intelligence helps learners develop better language skills for creative works.	2.70	0.98	A	2.59	0.77	A
4	Artificial Intelligence helps learners to explore concepts which their teachers are not able to access.	2.54	0.96	A	2.53	0.79	A
5	I view Artificial Intelligence as a threat to my job.	2.60	1.11	A	2.63	0.81	A
6	My students have been greatly transforme d by their application of Artificial Intelligence .	2.53	1.05	A	2.55	0.93	A

7	As a teacher, I don't see the relevance of Artificial Intelligence in my teaching.	2.80	1.05	A	2.89	1.03	A
8	As a teacher, I have a phobia of Artificial Intelligence.	2.58	0.96	A	2.69	0.98	A
9	When I give students work to do, like definitions of words, I allow them to use Artificial Intelligence.	2.34	1.02	D	2.42	1.04	D
10	As a teacher, Artificial Intelligence, like other digital technologies, is expensive to use.	2.77	1.21	A	2.87	1.01	A
	Grand mean	**2.57**	**0.48**	**A**	**2.62**	**0.47**	**A**

Key: N = Number of respondents, $\overline{X}_1$= mean for Mathematics teachers, SD_1 = Standard Deviation for Mathematics teachers, DEC_1 = Decision for Mathematics teachers, $\overline{X}_2$= mean for English Language teachers, SD_2 = Standard Deviation for English Language teachers, DEC_2 = Decision for English Language teache

Table 1 shows the mean and standard deviation scores on the perception of Mathematics and English Language teachers on the *application of* Artificial Intelligence in the educational system in Mezam. The result shows that the mean perception scores on items 2-8 and 10 are above the criterion level of 2.50 for accepting an item, this means that both respondents agreed as follows: That Artificial Intelligence should be used by students only back in their homes, helps learners develop better language skills for creative works, helps learners to explore concepts which their teachers are not able to reach, is viewed by teachers as a threat to their jobs, has greatly transformed students, does not have relevance to the teachers, generates phobia in teachers, like other digital technologies is expensive to use. Items 1 and 9 have perception scores below the criterion level of 2.50 for accepting an item. This means that both respondents disagreed with the statements that teachers appreciate students using Artificial Intelligence during lessons and that when teachers give work to be done by students, like definitions of words, they allow them to use Artificial Intelligence. The grand mean of 2.57 with standard deviation of 0.17 for mathematics teachers and 2.62 with a standard deviation of 0.17 for English Language teachers means that all the items in Table 1 are the perceived view of mathematics and English Language teachers on the *application of* Artificial Intelligence as an advantage or a threat except items 1and 9. There is a slight difference between the grand mean for both teachers, indicating the perception of mathematics and English Language teachers on the *application of* Artificial Intelligence in the educational system in Mezam.

Hypothesis One:

1. *There is no significant difference between the mean perception scores of* Mathematics and English Language teachers on the *application of* Artificial Intelligence as an advantage or a threat.

Table 2

1. **T-test analysis of the mean perception of mathematics teachers and English Language teachers on the** *application of* **Artificial Intelligence as an advantage or a threat**.

Status	N	Mean	Std. Deviation	Df	t-cal	Sig. (2-tailed)
Mathematics Teachers	25	2.57	.17	246	-0.751	0.46
English Language Students	45	2.62	.16			

The result of the study, as presented in Table 2, shows the t-test analysis of the significant difference between the mean ratings of mathematics and English Language teachers on the *application of* Artificial Intelligence as an advantage or a threat.

The result shows that a t-value of -0.750 with a degree of freedom of 238 and a probability value of 0.46 was obtained. Since the probability value of 0.46 is greater than the 0.05 level of significance for testing the null hypothesis, it means that the result is not significant. The null hypothesis, which stated that there is no significant difference between the mean perceptions of mathematics and English Language teachers on the *application of* Artificial Intelligence as an advantage or a threat, is therefore accepted. The inference drawn is that Mathematics and English Language teachers did not differ significantly in their perception of the *application of* Artificial Intelligence as an advantage or a threat.

Research Question 2

What is the perception of teachers and students on the *application of* Artificial Intelligence as an advantage or a threat?

Table 3

Mean perceptions and Standard Deviation showing the perception of teachers and students on the application of Artificial Intelligence as an advantage or a threat.

S/N	Item Statement	**Teachers** **N = 70**			**Students** **N = 336**		
		$\bar{X}_1$	**SD_1**	**DEC_1**	$\bar{X}_2$	**SD_2**	**DEC_2**
1	Artificial Intelligence makes me not internalise the subject content.	2.16	0.93	D	2.13	0.88	D
2	The materials students obtain using Artificial Intelligence increase students' levels of flexibility.	2.62	1.10	A	2.60	1.03	A
3	The work that students do using Artificial Intelligence does not enable the discovery of in-depth concepts.	2.22	1.09	D	2.31	1.06	D
4	The exploration of materials using Artificial Intelligence enhances students'	2.56	1.05	A	2.53	1.10	A

	divergent thinking.						
5	The materials students obtain using Artificial Intelligence do not provide multiple options.	2.33	1.00	D	2.39	0.97	D
6	Artificial Intelligence offers a learning environment that supports and encourages the students' originality.	2.64	1.12	A	2.63	1.05	A
7	Examples and materials obtained using Artificial Intelligence do not enable students to develop thinking ability.	2.43	0.98	D	2.41	0.88	D
8	Teaching and learning using Artificial Intelligence does not sharpen intellect.	2.42	1.04	D	2.35	0.98	D
9	Knowledge gained using Artificial Intelligence is not sustainable.	2.40	1.05	D	2.43	0.97	D
10	Skills cannot be gained	2.25	1.24	D	2.24	1.20	D

with the use of Artificial Intelligence.						
Grand mean	**2.40**	**0.17**	**A**	**2.40**	**0.16**	**A**

Key: N = Number of respondents, $\overline{X}_1$= mean for teachers, SD_1 = Standard Deviation for teachers, DEC_1 = Decision for teachers, $\overline{X}_2$= mean for students, SD_2 = Standard Deviation for students, DEC_2 = Decision for students, A= Agreed, D= Disagree.

Table 3 shows the mean and standard deviation perception scores of teachers and students on the application of Artificial Intelligence on the educational system in Mezam. The result showed that the mean perception scores of items 2, 4 and 5 are above the criterion level of 2.50 for accepting the item. This means that both respondents agreed that items 2, 4 and 6 above are the perceptions of teachers and students on the application of Artificial Intelligence in the educational system in Mezam. That is, the materials students obtain using Artificial Intelligence increase students' levels of flexibility, enhance students' divergent thinking, and the learning environment supports and encourages the students' originality. Items 1, 3, 5, 7-10 have mean perception scores below the criterion level of 2.50 for accepting an item. It means that both respondents disagreed with the items statement on the application of Artificial Intelligence in the educational system in Mezam which includes: Artificial Intelligence makes students not to internalize the subject content; the works students do using Artificial Intelligence do not enable the discovery of in-depth concepts and do not provide multiple options; Examples and materials obtained using Artificial Intelligence do not enable students to develop thinking ability; teaching and learning using Artificial Intelligence does not sharpen intellect, knowledge gained using Artificial Intelligence is not sustainable and skills cannot be gained with the use of Artificial Intelligence. The grand mean of 2.40 and standard deviation of 0.17 for teachers and 2.40 and standard deviation of 0.16 for students means that the items above, except items 1, 3, 5, 7, 8, 9 and 10

are the perceptions of teachers and students on the application of Artificial Intelligence in the educational system in Mezam.

Hypothesis Two:

There is no significant difference in the mean perception scores of teachers and students on the application of Artificial Intelligence in the educational system in Mezam.

Table 4

T-test analysis of the mean ratings of teachers and students on the application of Artificial Intelligence in the educational system in Mezam

Status	N	Mean	Std. Deviation	Df	t-cal	Sig. (2-tailed)
Teachers	70	2.40	0.17			
Students	336	2.40	.16	246	0.01	0.99

The result of the study, as presented in Table 4, shows the t-test analysis of the significant difference between the mean perception scores of teachers and students on the application of Artificial Intelligence in the educational system in Mezam. The result shows that a t-value of 0.01 with a degree of freedom of 246 and a probability value of 0.99 was obtained. Since the probability value of 0.99 is greater than 0.05, set as the level of significance for testing the null hypothesis, this means that the result is not significant. The null hypothesis, which stated that there is no significant difference between the mean perception scores of teachers and students on the application of Artificial Intelligence in the educational system in Mezam, is therefore accepted. The inference drawn is that teachers and students did not differ significantly on the application of Artificial Intelligence in the educational system in Mezam.

Discussions of Findings

The first null hypothesis revealed that Mathematics and English Language teachers did not differ significantly in their perception of the *application of* Artificial Intelligence in the educational system in Mezam. This finding collaborates with that of Mustafa (2024), who found that, in general, teachers possess a positive outlook on the use of AI in education, although some negative perspectives also emerged. The finding also agrees with that of Moura and Carvalho (2023), who observed that majority (90%) of their respondents who were teachers reported using digital technologies in their practices, but when it comes to using AI tools in their classes, they have no experience (100%), including chatbots. This result can be attributed to the fact that teachers generally view Artificial Intelligence as a threat, where some of their students could use it to challenge them and because they are equally scared that it may cause them to lose their jobs.

The second null hypothesis revealed that teachers and students did not differ significantly in their perception of the application of Artificial Intelligence in the educational system in Mezam. This finding agrees with the opinion of Turel, Simsek, Sengui Vautier, Simsek, Kiziltepe (2023) that Information and communication Technology constitutes the first of the nine subthemes under literacy skills whose focus is for students to be able to decide on the appropriate technologies in the processes of searching, finding, collecting, managing, transforming and evaluating information to use these technologies effectively, efficiently, productively, legally and ethically per their purpose. The finding also collaborates with that of Carvalho (2023) that Artificial Intelligence applications help teachers in saving their time and energy, facilitating skill development and innovative teaching and learning. The explanation could be that students have embraced technology so well that teachers are beginning to see the need to fully embark on acquiring the relevant technological skills to meet the demands of the technological age.

Conclusion

Artificial Intelligence is no doubt the trending technology, and every stakeholder must endeavour to acquire the skills for using it. From the findings of this study, it can be concluded that teachers of Mathematics and English Language are of the perception that the application of Artificial Intelligence should be enhanced in the teaching and learning process, and it should be the desire of other teachers. Some teachers remain negative about the application of the technology. Students, on their part, are very enthusiastic about the technology to be in vogue with the modern trends.

Recommendations

Based on the findings of the study, the following recommendations were made:

Teachers should take the initiative to build up their capacity in innovative technologies to be able to meet the demands of the technological era and the students who are advancing rapidly in these technologies.

Schools through the Ministry of Secondary Education should organise seminars to build up the capacities of teachers in innovative technologies.

Students should be guided on the use of the technologies so that they are not used during assessments as a tool for cheating, but they should be used for research work, especially at home.

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