Sustainable Quality: An Assessment of the impacts of Digital Teaching Resources on Learners' Growth in Mauritian HEIs

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Abstract

The paper's key objective is to assess the impact of the quality of digital teaching resources on learners' intellectual, emotional, and spiritual development in Mauritian Higher Education Institutions (HEIs). Grounded in sustainable quality education, the research employs a quantitative research method, by administrating a structured online questionnaire to ensure validity and reliability. The survey was distributed to 100 randomly selected learners from Undergraduate and Postgraduate programmes. The findings revealed out of the 38 responses, 20 and 33 respondents acknowledged significant positive correlational patterns between the applied digital teaching resources and their intellectual, emotional, social, and spiritual development. The authors conclude that to ensure a sustainable quality education in the Mauritian HEIs, there is a pressing need to align quality assurance frameworks, sustainability, and the digitalised learning-teaching resources. It is therefore recommended that a holistic usage of teaching resources is effected by conducting mapping and continuous course review for better alignment.

Keywords: Sustainable, Teaching Resources, Quality, Mauritius, Holistic

1.0 Introduction

Being a Small Island Developing State (SIDS), Mauritius has strategically underscored human capital development as the pillar of its social and economic growth, establishing itself as a regional knowledge hub in the African continent (Ramtohul and Oogarah-Pratap, 2021). This transition is catalysed by the convergence of the technological and digital transformation heavily dependent on the HEIs' potential to adapt, innovate and excel within an increasingly digitalised and globalised educational ecosystem (Ministry of Education, Tertiary Education, Science and Technology, 2020). While the Covid-19 pandemic has ushered in a drastic educational transformation in the higher education sector globally, obliging higher institutions to rethink and remodel conventional

andragogical frameworks towards an unprecedented digital migration (Bozkurt et al., 2020), the Mauritian HEIs have joined in the league to leverage the choice and implementation of digital innovations, ensuring the continuity, inclusivity, sustainability, resilience and equality of education mandated by SDG 4 (United Nations, 2025) to enhance the learners' holistic development. Within this context, Mauritian HEIs face the challenge of ensuring sustainable quality whilst orientating themselves towards holistic principles and frameworks. The efficiency of integrated educational curricula and institutionalised paradigms, infrastructures and the pivotal role HEIs play in nurturing sustainable quality and multidimensional development of learners (Foley & Masingila, 2019) is contingent upon the relevance and effectiveness of digital teaching resources.

Within the current blended learning models and environments and paradigmatic shifts, the HEIs have been pressed to reimagine and re-adapt the use of digital andragogical resources. The institutions were called not only to assess the existing and available teaching resources but most importantly, review their andragogical quality, alignment, and capacity to support holistic blended learning environments (OECD, 2021; UNESCO, 2021). It is within this context that the sustainability of the teaching resources surfaced as a determinant factor of learner engagement, achievement, and wholesome development in HEI systems worldwide. The integration of the synchronous and asynchronous digital learning mode is now a dominant instructional model in contemporary higher education (Graham, 2020; OECD, 2023). Subsequently, Mauritius has made a commendable effort to amend its 1957 Education Act to ensure effective support is provided to sustaining the online learning and teaching practice (Atchia, 2022); simultaneously, the HEIs innovated in the production of nationalising the educational video productions broadcast on the national TV channels as well as immersed into the creation of Open Educational Resources (OER) commissioned by the Commonwealth of Learning (COL) to reach out to learners and cater for their all-round development. In the same perspective, the Mauritian HEIs not only innovated but also made optimal use of the existing and modernised Learning Management Systems (LMS) in the urge to provide personalised learning tools and assistance to the learners (Velu et al., 2025). While the OU opted to introduce the OULearn Blackboard LMS, the other HEIs preferred to maximise the already existing platforms, namely Microsoft Teams, Zoom, Google Classrooms and Moodle LMSs, to name a few. The choice of the LMSs was dependent on multiple factors – cost-effectiveness, accessibility, user-friendliness, technological aptitude, among others – and to facilitate the course delivery, learners' interactivity and engagement with the aim to enhance their learning apprenticeship.

While the blended method indicates flexibility and extended access to learning, its efficiency is stalwartly arbitrated by the quality of digital teaching resources, counting curriculum design, digital learning materials, assessment tools, and instructor preparedness (UNESCO, 2022). Therefore, the reimagining of the digitalised andragogical resources of the HEIs landscape in Mauritius evidences the transcendence of the superficial technological implementation encompassing the established educational and institutionalised paradigms, infrastructures and the key role of HEIs in fostering sustainable quality (Foley and Masingila, 2019). This statement is supported by Udhin et al., 2023,

putting forth that the urgency of this transformation was the need of the hour towards enhancement of the educational quality, accessibility, sustainability, and ensuring international competitiveness within the resource constraints (Udhin et al., 2023).

Aligned to the ODL mode, it was also imperative for the Mauritian HEIs stakeholders to represent a critical juncture in the nation's educational evolution, where technological learning and teaching tools and practices must bring an equilibrium between pedagogy, sustainability, quality and inclusivity. Given that Mauritian HEIs still navigate between the complexities of the digital divide and andragogical resources, the immersive and implementation of innovative and modern educational technologies within the HEIs. Thus, the Mauritian HEIs made a laudable effort to review the learning-teaching resources in the view of cultivating graduates equipped with skills to cater for their wholesome development for a sustainably effective and inclusive labour force. The synchronous and asynchronous mode assisted the learners and tutors in not only the course delivery but, most importantly, in deciphering the weaknesses of the learners to empower them with the transferable skills promoting quality within the HEIs and job market. In this way, it is imperative for the current research to assess the tension between the technological divide, innovation and human-centred educational services which lie at the core of contemporary debates about inclusivity, accessibility, quality and sustainability in the Mauritian higher educational domain. Within the Mauritian HEI landscape, the shift towards blended learning has strengthened questions surrounding the competence, significance, and instructive rationality of teaching resources supportive of learner's holistic growth – intellectual, emotional and spiritual. Despite the institutional commitment to Quality Assurance frameworks and learner-centredness, experiential investigation of how teaching resources function within blended learning models remains debatable and limited in nature. This paper consequently seeks to evaluate the bearing of teaching resources on learners' holistic expansion in Mauritian HEIs, positioning quality not simply as academic performance, but as sustainable learner development across intellectual, emotional, and spiritual scopes.

2.0 Literature Review

Currently existing scholarship progressively underpins that sustainable quality in higher education must go beyond the cognitively and academically acknowledged results to incorporate the holistic growth of learners. Therefore, it includes the emotional well-being, ethical awareness, social responsibility, and the capacity for self-reflection and meaning-making—dimensions often associated with emotional and spiritual development (OECD, 2021; UNESCO, 2023). Against this backdrop, digital teaching resources play a commendable role in shaping learning contexts, learner-tutor interactions, reflective, values-based and collaborative learning systems. In such blended environments, thoughtfully designed resources can endorse inclusivity, learner autonomy, emotional engagement, and a sense of purpose, while resource deficiencies may intensify disengagement and fragmentation (Kahu & Nelson, 2020). These recently carried studies delineate the concept of higher education quality sustainability as the readiness and competency of teaching

and learning models to buttress lifelong learner development beyond short-term academic performance (Filippou, Kallo & Mikkilä-Erdmann, 2023). Within this backdrop and framework, andragogical teaching tools and resources are commendably deemed not simply as effective and instrumental tools, but most importantly, as conduits for learner engagement and participation, existential definition, and values-based overall growth. The paradigmatic transition embracing blended and digital learning settings has amplified scholarly attention and research on the quality, design, and pedagogical alignment of digital teaching resources (Bond et al., 2024). In favour of the stated argument, Martin et al., (2023) put forth that quality-oriented digital teaching resources are generally authenticated through dimensionality of andragogical coherence, accessibility, interactivity and engagement, cultural relevance and the proper alignment with the established intended learning outcomes. In contrast, to sustain the discursive argument, some research posited that misaligned and poorly designed and developed digital learning resources and materials may aggravate learners' cognitive load as well as emotional disengagement, whilst effectively and high-quality designed teaching resources can foster deeper learning, learner autonomy, and reflective engagement (Sweller, Ayres & Kalyuga, 2024).

Scholarly rhetorics and treatises on sustainable quality in HEIs progressively focalised on the significant and relevant role of digital teaching resources in molding holistic learner development and progress. Subsequently, sustainable quality, is no longer the buzz word restricted to the academic performances, rather, it encompasses intellectual, emotional, and spiritual dimensions that together contribute to wholesome and lifelong learner growth (UNESCO, 2024). In the current digitalised learning-teaching environments, the andragogically aligned, inclusive, adaptable and ethically intentioned not only stipulate the quality of teaching resources but also act as a determining factor of this multidimensional development (Bond et al., 2024) namely cognitively, emotionally and spiritually driven growth. Existing literature demonstrates that well-aligned digital teaching resources, for example, scaffolding, interactive activities, inquiry-based learning, empathetically impact and influence critical thinking, conceptual understanding, and knowledge transfer in higher education contexts (Lim et al., 2023). These tools support deep learning by sanctioning learner-centred active constructive knowledge systems instead of passive knowledge and content consumption, a prerequisite to sustain intellectually sustainable development. This stand is further acknowledged by Bond et al. (2024) whose study revealed that within the blended and online learning frameworks, the embedding of multimedia and digitalised resources combined with active and interactive learning strategies have undeniably enhanced higher-order cognitive skills, provided that resources are pedagogically intentional rather than technologically driven. This statement is distinctly appealing to HEIs in SIDS contexts, such as Mauritius, whereby digital amplification might jeopardise access priority over andragogical rationality and concordance. To support this claim, Martin et al. (2023) endorsed the argument that intellectual sustainability and advancement predominantly rely on the andragogical alignment between the digitally- created content, designed assessment mapping, and the scope for "metacognitive reflection" (Ibid). As such the absence of such an alignment, digitally-designed teaching resources may lead to an upturn in cognitive load and disturbed learning experiences

among learners, in turn, sabotage life-long intellect growth in learners. Besides, adaptive and inclusive learning, according to research, acts as signets to define the quality of digital teaching resources. Therefore, adaptive and inclusive andragogically designed educational technologies and platforms and Open Educational Resources (OERs) content have evidenced support and agency for differentiated learning styles, in turn, fostering equitable intellectual growth across diverse learner populations (Zawacki-Richter et al. 2024). This claim is distinctly applicable and relevant to the Mauritian HEIs, acting as heterogeneous environments accommodating learners from varied socio-cultural, economic, and academic profiles within their multicultural contexts.

Recent years have witnessed an increase in academic consideration towards the learners' emotional and affective development which appear to be less dominant than the intellectual bearings. In higher education, emotional growth goes beyond learner motivation, self-efficacy, belonging, and psychological wellbeing—all of which are integral to sustainable learning trajectories (Pekrun and Linnenbrink-Garcia, 2023). As a matter of fact, digitalised teaching resources play a relevant role in generating and fashioning these emotion-based results, with specific reference to the designed features promoting constructive feedback, learner self-learning and interaction. Empirical evidence sustains that highly-quality digital teaching resources, illustrated by aesthetic coherence, clarity and interactivity, may plummet anxiety, stress and enhance learners' emotional engagement with course content (Kahu et al., 2023). Contrariwise, flawed digitalised teaching resources lead to resentment, disengagement, and emotional exhaustion, which disproportionately affect first-generation and part-time students (Bond et al., 2024). Subsequently, within frameworks of higher education sustainability and quality, such affective interaction and engagement are not solely contributory to academic performance and achievement, but are deemed to be the heart of the learners' wellbeing. Aligned, the operationality of digital resources is discussed whereby asynchronous learning through forum discussions, reflective tasks, constructive written and audio feedback devices have fostered a sense of connection and care, mitigating the emotional distance often associated with digital learning environments (Martin et al., 2023). These findings delineate that affective growth is undeniably interlinked to how digital teaching resources intercede human presence and andragogical empathy.

Aligned to the cognitive and emotional development of the learners, the spiritual dimension, the least researched one, is a significantly acknowledged element of sustainable and quality education. In higher education environments, spiritual growth is not concretised in terms of any religious-based notions and activities, but rather as learners' conceptualisation of sense of purpose, values, ethical awareness, and meaning-making in relation to knowledge and society (UNESCO, 2024). Consequently, digital teaching resources act as catalysts to shape the way in which learners connect on a multidimensional level whereby they interlink disciplinary knowledge to ethical, moral, social and existential dimensions. In this perspective, current research contends that 'reflective' digital andragogies, for instance, case studies, real-life simulations, community-based projects, support learners' spiritual growth by boosting critical self-introspection and value-oriented learning ((Waghid and Davids, 2023). Therefore, these teaching resources empower learners to contextualise

academic knowledge within lived experiences, fostering a sense of accountability and social consciousness aligned to the SDGs.

Furthermore, Zawacki-Richter et al. (2024) argue that sustainability and digitally-oriented curricula endorse transformative and interactive learning when teaching resources overtly engage learners in interrogating prevalent paradigms and picturing the future. Within the Mauritian HEI context, tertiary education is progressively connected to national progress and social cohesion, namely spiritually conversant learning is pivotal for humanising ethically rooted learners.

3.0 Research Methodology

The paper adopted a quantitative approach to collect data to explore the relationship between the quality of digitalised teaching resources and the wholesome development of learners within Mauritian HEIs. The sample size for the questionnaire was calculated using the online Raosoft program to ensure validity, credibility, and reliability of the generated data in a more accurate and indicative manner of the study's objectives. Subsequently, the sample size was determined in accordance with statistical principles, placing an emphasis on both statistical power and representativeness (Smith et al., 2018). Using purposive sampling technique (Ahmed, 2024), an online questionnaire was distributed inclusive of respondents hailing from different regions, gender with a specific focus on the target respondents to ensure the geographical and diversity inclusivity to enable the generalisation of findings to the larger population of Mauritian HEIs. Responses were collected and analysed using SPSS, revealing statistical patterns, associations and variations within the target sample size. The analysis also delved into how effectively these digitalised teaching andragogical resources and tools highlight the quality, effectiveness and developmental capacity for learners.

4.0 Data Analysis and Interpretation

In this section, the authors adopt an interpretative approach to analytically identify patterns addressing the paper's objective and research questions.

4. 1 Intellectual Development

Quality of digital teaching resources provided by your institution and current blended teaching model caters for your intellectual development.
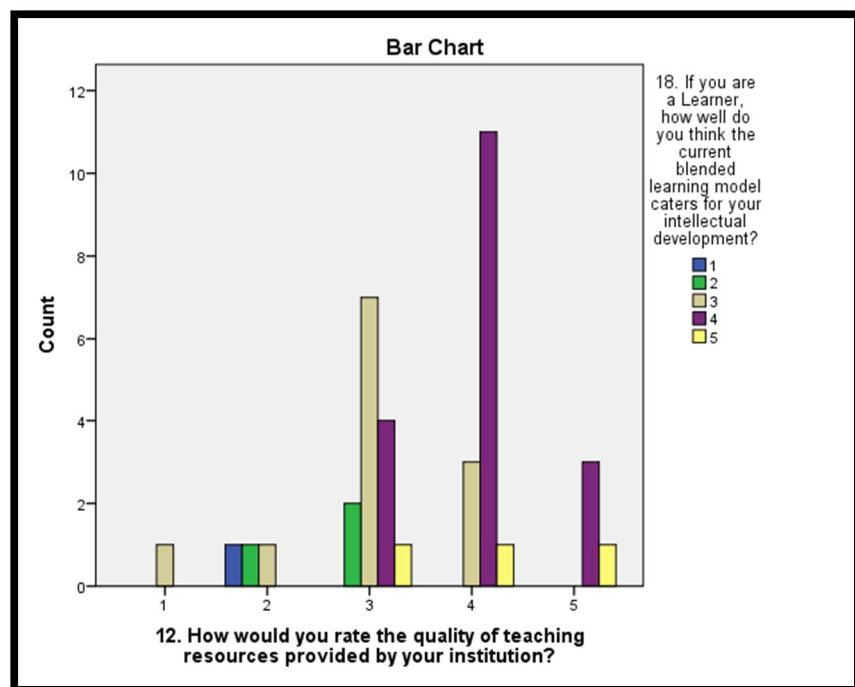
Figure 1: Impact on intellectual development

From the above Bar Chart, it can be identified that 20 respondents (53 %) gave a 'strong' rating certifying the quality of teaching resources provided by their respective institution. The respondents also confirmed that the current blended teaching model caters for their intellectual development. As such, to explore the association between quality of teaching resources provided by their institutions and learners' intellectual development, the hypothesis is defined below:

H_o: *There is no association between the quality of digital teaching resources provided by your institution and how the current blended teaching model caters for your intellectual development.*

H_1: *There is an association between the quality of digital teaching resources provided by your institution and how the current blended teaching model caters for your intellectual development.*

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	22.545[a]	9	.007
Likelihood Ratio	21.369	9	.011
Linear-by-Linear Association	7.364	1	.007
N of Valid Cases	20		

a. 15 cells (93.8%) have expected count less than 5. The minimum expected count is .10.

From the Chi-square test in the above Table, it can be concluded that since the p value (Asymp. Sig) is less than *0.05 (0.007<0.05)*, the authors reject the null hypothesis (H$_o$) at 95% level of significance and we do accept the alternative hypothesis (H$_1$). Thus, it can be underpinned that there is a significant association between the quality of teaching resources provided by learners' institutions and the current blended teaching model which caters for their intellectual development.

The strength of the association was also measured and the result is illustrated in the table below:

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	1.02	.007
	Cramer's V	.613	.007
N of Valid Cases		20	

From the above Table, the data delineates that there is a 'moderately strong' association between the quality of teaching resources provided by the participants' institution and the current blended teaching model responds to their intellectual development (Cramer's V = *0.613*). According to Casanova et al. (2021) and Tiffany (2022), the quality of teaching resources is instrumental and primordial to unlock learners' implicit cognitive potential in a blended educational setting.

Similarly, the Quality Assurance Authority (QAA), by virtue of Section 30 (b) of the Higher Education (HE) Act (2017) in Mauritius underscores that both learners and tutors should have equitable access to high quality teaching resources such as regularly audited learner management systems and e-libraries to nurture and elevate a critically reflective and intellectual learning atmosphere. In turn, tutors are empowered to use digitalised andragogies to help learners address contextually relevant and complex issues with more resilience and autonomy. Deryabina and Sergeichik (2020) contend that institutions need to provide learners with high quality and practical resources to foster problem-solving environments and mediate learners' cognitive processes. Ultimately, the availability of high-quality digitalised resources enhances learners' ability for higher-order thinking, thereby contributing to both cognitive growth and academic achievement.

4.1.1 Emotional, Social and Spiritual Development

Quality of digital teaching resources provided by your institution and the current blended learning model caters for learners' emotional, social and spiritual development.
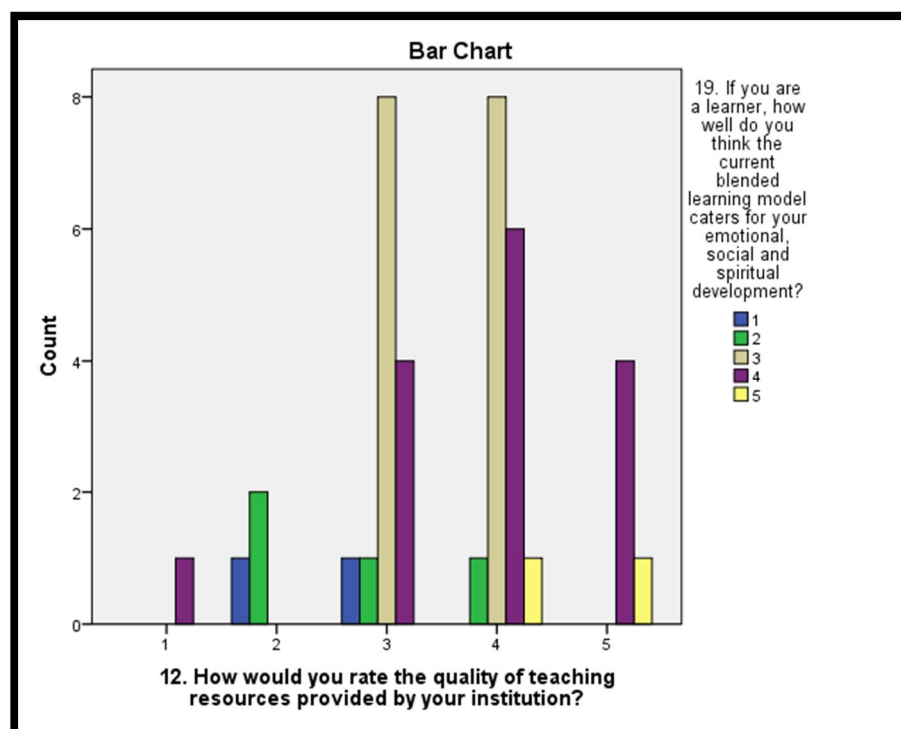

Figure 2: Impact on emotional, social, and spiritual development

From the figure above, the data indicates that there are 33 respondents (87 %) who gave a 'strong' rating highlighting that the quality of teaching resources provided by their institutions and the current blended teaching model cater for their emotional and spiritual development. Moreover, to explore the association between quality of teaching resources provided by the respondents'

institution and the current blended teaching model which caters for their emotional, social and spiritual development, the hypothesis is defined below.

H$_o$: There is no association between the quality of teaching resources provided by learners' institutions and the current blended teaching model which cater for their emotional, social and spiritual development.

H$_1$: There is an association between the quality of teaching resources provided by learners' institutions and the current blended teaching model which caters for their emotional, social and spiritual development.

Chi-Square Tests

	Value	df	Asymp. Sig.(2-sided)
Pearson Chi-Square	28.952[a]	16	.024
Likelihood Ratio	26.852	16	.043
Linear-by-Linear Association	8.545	1	.003
N of Valid Cases	39		

a. 21 cells (84.0%) have expected count less than 5. The minimum expected count is .05.

From the Chi-square test in the above Table, it can be concluded that since the p value (Asymp. Sig) is less than *0.05 (0.031<0.05)*, the authors reject the null hypothesis (H$_o$) at 95% level of significance and we do accept the alternative hypothesis (H$_1$). Thus, it can be underlined that there is a significant association between the quality of teaching resources provided by learners' institutions and the current blended teaching model which caters for the emotional, social and spiritual development.

The strength of the association was also measured and the result is shown in the Table below:

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.862	.024
	Cramer's V	.431	.024
N of Valid Cases		39	

The findings in the Table reveal that there is a 'moderate' association between the quality of andragogies provided by the tertiary institutions and the current blended teaching model which caters for the morale, social, and spiritual growth of learners (Cramer's V = 0.431). As asserted by Zhara (2020), it would be systematically impossible to address the emotional, social, and spiritual development of learners without the seamless integration and use of high-quality andragogies. Corroborating with this perspective, Nwaham (2023), also recommends that high quality digitalised andragogies play a key role in enhancing meaningful learner engagement and social collaboration, thereby supporting the learners' emotional, social, and spiritual betterment. Unanimously, these scholars contend for the use of high-quality andragogies to promote sustained inclusive higher education and the wholesome development of learners. Nevertheless, Schonert-Reichl (2017) emphasizes that high quality andragogical resources need to be inclusive enough to accommodate mixed-ability students. All learners should be able to achieve their full potential and feel emotionally, socially, and spiritually equipped to achieve personal growth and successfully engage in a blended learning setting.

5.0 Conclusion and Recommendations

The authors therefore deduced that the selected Mauritian HEIs have already implemented high quality digitalised teaching andragogical resources to cater for the learners' cognitive, affective, community-based, and spiritual needs and development. The results delineate that there is a definite and distinct connection between high quality digitalised teaching tools and the all-round growth of respondents. While the statistics revealed that the majority of the learners strongly rated the relationship between the quality of digitalised tools and the affective, social, and spiritual domain within the HEIs, approximately half of the sample size associated a strong rating to the relationship in regards to their intellectual development. Therefore, the study proposes to conduct a cognitive mapping by identifying the learners' intellectual abilities to adapt the quality andragogical resources catering for their holistic development. Additionally, to ensure the intellectual, affective, social and spiritual growth of the learners within the higher education Mauritian milieu, the authors strongly advocate for the continuous and consistent reviewing of their adopted andragogical resources to cater for the mixed-abilities and diverse backgrounds and learning styles of learners. For further studies, the authors recommend that the feasibility and adaptability of the mentioned andragogies

should be thoroughly assessed and evaluated to foster sustained quality and inclusivity based on the learners' profiles.

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