

Information Behavior and Library Resource Use among Generation Z Undergraduates

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ABSTRACT

This study investigated the information behaviour and use of library resources of Generation Z undergraduate students at Universiti Teknologi MARA (UiTM) Negeri Sembilan. In a world where digital technology is ubiquitous, academic libraries are struggling to remain relevant to Generation Z. The Generation Z students are using online resources and taking responsibility for their own learning. A questionnaire was administered to undergraduate students at UiTM Negeri Sembilan on their information needs, information seeking behaviour, information literacy skills and use of library resources. The results were subjected to quantitative analysis (Cronbach reliability, descriptive statistics, structural equation modelling). The study found that students had high information needs (mean, 3.85/4), high information seeking behaviour (mean, 3.64/5) and high information literacy skills (mean, 3.72/4). The results showed high reliability (Cronbach's $\alpha > 0.78$ for all constructs). The results of the structural equation modelling indicated that information literacy skills ($\beta = 0.536$, $p < 0.001$) were the strongest predictors to library use, with information need ($\beta = 0.235$, $p < 0.001$) next, while information-seeking behaviour ($\beta = 0.117$, $p = 0.021$) was the weakest. The study shows that high information needs does not lead to high library use. Actively and strategically seeking information behaviour is the predictor to library use. If library use is to be increased then libraries at UiTM must develop services which are digital, which provide specific training in information literacy and which supply library resources in formats which are consonant with student information behaviour patterns. The results of this study will serve as a base to allow libraries and educators a framework to improve access to and use of academic information via strategies which are user centred.

Keywords: Information behaviour, Information literacy, Information-seeking behaviour, Library resource use, Generation Z, Academic libraries, Digital learning.

INTRODUCTION

Background of the Study

Generation Z (Gen Z), the cohort born from the mid-1990s to the early 2010s, is the first generation to grow up wholly immersed in digital technology. Their learning and information-seeking habits reflect their digital nativeness, as they tend to place great importance on convenience and immediacy and use interactive multimedia platforms (Cain et al., 2022; Tjiptono, 2020). In Malaysian higher education, the shift is clear: while students find they have substantial information needs arising from the academic work they are required to do, a significant number are not making the full use of the resources of their university libraries to meet these needs (Naveed & Mahmood, 2021; Malaysiakini, 2023).

Studies have shown that Malaysian students are aware of their academic information requirements but lack high levels of information literacy skills, which have the effect of restricting the efficient use of the university's scholarly databases (Naveed & Mahmood, 2021). By way of example, a study conducted at UiTM has revealed that only about one-third of respondents use the digital library services provided adequately, while the rest depend heavily on lecture notes written by themselves (87%) and by others (72%) for their information needs,

indicating a vast gap between the information needs of students and the need to consult the formal library resources available (Ismail, 2024).

Similar findings have come to light here, in South-East Asia, where the high information needs required for study do not lead automatically to a use of institutional libraries and library-resources because of digital convenience and usability factors (Htay et al., 2022). The academic libraries of UiTM Negeri Sembilan have considerable physical and electronic holdings and a large range of services, but the borrowing statistics are only moderate in comparison to the range of holdings available (Ismail, 2024). One of the factors contributing to this situation is the way students search for information and the habits they have with respect to information seeking. Use of the more advanced strategies of searching available to them, such as Boolean logic, is seldom employed. In fact, only 27% of Malaysian undergraduates have been reported as using the techniques of availing themselves of such facilities properly. Again, it has been reported that as many as 85% of students overlook aspects of the credibility of sources in getting information at the time of searching the Internet (Hsu, 2021). Even where greater accessibility of infrastructure has been gained, students have tendencies to prefer receiving free sources of information that are accessible very rapidly, such as in the use of Google and social media, to availing themselves of using libraries (Devi et al., 2024; Jiao et al., 2023).

In the background of these developments, changes at the global level are also noted where undergraduates (of Gen Z) in all countries of the world prefer to use social media and other electronic forms of media for searching for information, without the necessity of traditional library use. Thus, there is a clear need for a rethinking of the academic services we offer in Libraries (Okwu et al., 2025; Cain et al., 2022). The complex interaction between such needs and information searching behaviour, information literacy and library usage is considerable. Several studies indicate that a very high information need does not in itself lead to finding library resources, but that the transition from a need to the taking up resources will depend upon considerations of expediency, awareness and competence (Soroya et al., 2020; Naveed et al., 2023). It has also been indicated that there is considerable engagement with Libraries for students who have involved themselves in structured and strategic searching procedures using subject databases, Boolean operators and filtering techniques (Weber et al., 2018; Zhu et al., 2021). Those relying more on a simple key-word search, searching mechanisms or Googling, extensive use of library systems of any description always seems to be for either reason of difficulty and expensiveness or of low ease of adoption (Htay et al., 2022).

It has been shown positively to relate the degree to which students are information literate, where literacy is (defined) as the need to be able to locate, to evaluate, and to use information (ie. use of libraries), although literacy is not sufficient it would appear unless allied to a willingness to seek and use appropriate channels (Akter Ahmed, 2024; Dolniar & Podgornik, 2023).

This study, therefore, is designed to investigate information searching behaviours in the context of Library resource used of our own undergraduates of UiTM Negeri Sembilan. The focus of the study concentrates on (1) the information need, the information searching and the information literacy of the students involved, and (2) the relationships of such factor worship (of various aspects of the library information resource centre). This will take place to assist us in establishing what sorts of intervention to make, if at all necessary, to our relationships with both Librarians and College Tutors. To inform the academic communities of the nature of approaches to be made in terms Library resource information learning/experience from Library's, (of an increasingly interesting nature to Gen Z) expected from their Libraries.

LITERATURE REVIEW

Generation Z

The notion of digital literacy has evolved substantially Generation Z (born between 1997-2012) is regarded as the first fully digital-native generation, shaped by experiences that relate to ubiquitous access to the internet, mobile delivery systems, and algorithmically structured information environments. Their preferences for how, when, and in what mode learning takes place emphasise speed, personalisation, and interactivity, setting them apart from previous generations (Devi, Ramli, & Malek, 2024). Cain, Loewenstein, and Harbaugh (2022) found

that Gen Z learners favour multimodal resources providing a combination of visual, aural, and interactive resources, which provides a congruity with the prevalence of platforms like TikTok, YouTube, and Instagram, in entertainment and education. On the other hand, exposure to these digital environments has changed their perspectives on authority and quality of information.

Okwu, Adeniran and Ibrahim (2025) found that Nigerian undergraduate learners appreciated information from libraries but questioned the relevance of library provided information services and what convenience they offered compared to speed and familiarity of the internet. Yee and Tan (2024) also found the case in Malaysian Gen Z learners in which the immediacy of searches was at times valued as being equivalent to credible information, indicating a *modus operandi* conditioned by their digital upbringing in which usability cuts across reliability or credibility of the information. At the same time, Gen Z learning egregiously shows self-directed tendencies and prefers control over the pace, sequence, and tools of their learning (Subaveerapandiyan, Lee, & Lim, 2023).

This coincides with research findings on student autonomy—Devi et al. (2024) assert that Gen Z students want educational arenas to provide for formal learning with mobile apps, social media, and cloud technologies. Higher educational institutions and particularly libraries have the challenges of aligning with generations who want the sources and structure of traditional academic standards combined with flexibility of digital provision and social recognition.

Information Behaviour and Library Resources Use

Information behavior frameworks (Wilson, 1999) demonstrate that resource utilization is dictated not only by recognized information needs, but also by seeking strategies and mediating factors such as the following: literacy, resources and institutional support. Recent evidence shows that Gen Z's information behavior is likely to deviate significantly from previously accepted models of information behavior due to the inherently digital based preferences of this demographic group. In many contexts, the high academic information needs of students appear not to translate into library usage by them. Htay, Ling and Tan (2022), for instance, noted that 92% of Southeast Asian students resorted to the default function of Google for searching information, while nearly 88% made recourse to social media information in respect of academic queries, even although they had access to institutional databases.

The use of these resources is superseded by convenience and habit. In similar vein, it was found by Nieminen, Savolainen and Gu (2020) that Malaysian dental students relied heavily not on library provided databases, but on peer feedback and lecture notes, despite a recognition of the value of credible information. Emerging studies seem to confirm that library usage depends less on the existence of resources, but rather more on default behavior types of students themselves, as well as on perceptions regarding usefulness. Zaki, Anuar and Dollah (2023) found that UiTM students in fact valued library services qualitatively but did not engage with them ever, because of perceived difficulties with usability of digital platforms.

Yusof, Halim and Rahman (2023), further studied the behaviors of specific students and found that students demonstrating a strong adoption of seeking behaviors (to include behaving behaviourally differently towards usage of multiple databases, consulting librarians) had strong academic performance results and rated the benefits of seeking behaviors in relation to effective library usage. The literature examined above however, does underline the mediating factors of behavior and perception; libraries may have vast resources but unless students' behaviors are congruent with library systems and unless they have the competencies of literacy, library usage is very low. This is especially true as far as Gen Z is concerned. The defaults of their behaviors are founded in ecosystems incentivizing immediacy, personalization and user control.

Gen Z and Information Behaviour and Library Resources Use

In addressing Generation Z undergraduates, the combined incidence of high need, digital preference, and information literacy gaps presents a paradox. Students have high academic needs for information, yet they tend to bypass library systems for quicker options favoured by their peers. Devi et al. (2024) reported that Generation Z students from South-East Asia routinely incorporate YouTube and Twitter in their studies and routines, placing

them in the category of primary sources for explanation and peer experience. Okwu et al. (2025) reported similar findings, in that Nigerian undergraduates shunned the library for e-learning platforms and social media as the backbone to their information-literacy based needs. Regarding undergraduates in Malaysia, the UiTM situation presents a similar pattern. Utilizing findings from UiTM Negeri Sembilan, the students had high needs for information and moderate information literacy yet retained a tendency toward sources from the open web rather than from institutional databases.

This is congruent with the findings of Tan and Salleh (2023) that the Malaysian students overestimated their IL capabilities by equating searching skills with the Google environment as equivalent to advanced levels of literacy. Therefore, even students who consider themselves capable find that they struggle with more closely defined database search queries or exercises for critical appraisal, diluting the associations between need and use of libraries. However, there has been some recent research that does outline the beneficial nature of interventions. Akter and Ahmed (2024) have shown that the students in Bangladesh have reported massive improvements in their information literacy scores—from an average of 28.4% correctness pre-training exposure to greatly improved scores post-training—when exposure to structured information-literacy instruction is received. Similar results have appeared elsewhere, in ASEAN situations, in which information literacy training has been integrated into the curricula by libraries (Subaveerapandiyan et al., 2023).

These seem to indicate that the barriers which Generation Z students appear to face are not immutable uploaded facets of the personality structure associated with the Generation, but rather deficits in skills that can be altered by means of advice imparted in interventions which are targeted. In summary, regarding the behaviors of Generation Z toward information, there appears to be a structural mismatch, in that high needs are present, but the mode of behaviors and skills are a product of digital-first modes which are often negating regarding libraries. Academic libraries, which would include those operated by UiTM, need therefore to re-position themselves as dynamic, user-centered partners not only in supplying information, but also in the physical and digital experiences offered which Generation Z expect as partners.

This repositioning requires that more information services be dealt through the platforms which students already meet, and through easy access systems such as mobile designed systems, and AI usage, and by incorporating instruction in literacy directly into curricular units. By tackling this behavioral and systemic gap, it would be possible to transform the high levels of information need which Generation Z students possess toward a more stable, more active level of satisfaction, and once achieved this high information need would become engendered as a way of use of libraries.

Research Framework and Hypothesis Development

By integrating the foregoing perspectives, we see that a research design may be conceptualized in which information need, information seeking behavior, and information literacy skills operate as independent variables that have possible effects on the dependent variable library information resource use. This fits within Wilson's macro model (need, seeking, use) but also isolates IL skills as being a component which may enhance or impede effective seeking and use. Thus, there is some implicit consideration given to the TAM concept: the degree to which seeking, and IL skills translate into a library use variable may depend upon student perceptions of the library's usefulness, facility of use, etc. (but these perceptions are not computed here being noted in interpreting results). From our review of the literature, we have come up with the following extrapolated hypotheses: H1: There is a significant relationship between undergraduate students' information need and their use of library information resources. The students who perceive themselves to have a higher level of academic related information need (for instance, those students who frequently have need for information for assignments, research, or personal knowledge deficiencies) will be expected to use library resources to a higher degree. This hypothesis relates to the thought that need is a motivational force in the impulse to seek information.

There is research supporting this hypothesis H1. Akter and Ahmed (2024) noted that as undergraduates became more aware of their academic information needs (especially after their awareness of scholarly information needs was accentuated by IL training) that their use of both internet and library source material witnessed a dramatic increase. Htay et al. (2022) also noted that students with specific urgent information needs (in the case of their

study, information needs related to health) were more vigorous in their utilization of established databases and institutional digital resources to satisfy those needs. From these findings we learn that the extent of the need and specificity of the information required serve as a powerful predictor of the need to utilize formal library means. We may predict in our case that students with a strong feeling of the need for substantive information (e.g., for the completion of a thesis or major project) will evidence a much higher incidence of library use over those with only minimal or routine-type information needs.

H2: A significant relationship exists between undergraduate students' information-seeking behavior and their use of library information resources. We define "information seeking behavior" as how proactive and methodical students are in searching for information (including variables that capture how often students search for information, different sources used in the search, and search strategies). In other words, we expect that undergraduate students who demonstrate more active and complex information-seeking methods are more likely to report frequent use of library resources. Weber et al. (2018) found that students who used a more complex search strategy (for instance, checking multiple scholarly databases, refining their search, etc.) not only had an advantage in performance to their peers, but they were also much more likely to be regular users of the library.

Zhu et al. (2021) similarly reported that employing more advanced information-seeking strategies (e.g., intentional attempt to formulate a query or evaluate search results critically) were associated with a greater reliance on academic libraries. Collectively, the evidence suggests that the way undergraduate students seek information (their behavior) plays a major role in where they find information. For example, undergraduates that are accustomed to typing a question into Google may not routinely access the library's databases. Conversely, a student who uses this typical form of information seeking yet knows how to find the subject index, uses Boolean searching, and/or searches the library catalogue is likely much more willing (and able) to use library resources. In fact, Htay et al. (2022) found that students' information-seeking behavior during the pandemic (for example, if the student took the time to verify information, or if they pursued their query in a systematic way) was directly related to their satisfaction of use of academic information sources, suggesting that deliberate seekers are more likely to use academic sources and value them more than their peers.

We expect to find that undergraduate students who report more frequent and in-depth information seeking (e.g., consulting multiple sources, using library search engines or databases, asking a librarian for help) will report using library information resources more often. H2 is also consistent with the most recent version of the Health Information Technology Acceptance Model (TAM): we would expect that active seekers of information will also likely perceive library resources to be useful in meeting their search needs and would thus incorporate them into their search process.

H3: There is a significant relationship between undergraduate students' information literacy skills and their library information resource use. We put forward therefore a hypothesis in general terms that students who are proficient in IL – and the extent of their capacity to find, evaluate, and use information – will on the other hand make greater use of the library and of better use of it than do those students. The rationale here is that a student with good IL competences will then be in a position freely to make the proper evaluations of library resources of the databases; to be able to tell the difference between a scholarly document or not, and so on. This student then will presumably be able to profit in greater degree from what the library can provide for them.

There are several studies examining opinions that give support to these findings. For example, Akter and Ahmed (2024) have reported from an experimental study that students who received structured IL teaching were then subsequently twice as likely to use academic databases, then those who had no such instruction, and that they felt at least more confident in orienting themselves in the system of libraries. A recent study by Subaveerapandiyan et al. (2023) in respect of students in the ASEAN region has examined the point that limited information resources and digital literacy were important barriers to subscribing for information to the digital tools which libraries had available, because this means that the students were missing IL skills which would presumably restrict the extent of use of the library resources (and conversely that if the IL skills were high the resource use would be probably of an extended use).

Dolničar and Boh Podgornik (2023) have investigated Slovenian students and found that those students who had undergone targeted IL instructions were very much more competent in availing themselves of library resources, evaluating and exploiting them as compared with the previous position and rapidly taught possible use of these in their academic work, than they were before their testing. These findings would suggest to us that IL skills have a rather positive tendency on the extent of their use by students of the academic library sources. It will be, however, be available to note that some of these findings are somewhat ambiguous. YevelsonShorsher and Bronstein (2018) in reporting that students who had no IL awareness were, in general, ignorant of the existence of the relevant library resources upon which they failed to rely for their information did find that students who were highly self-rated in the IL ability might not be using the libraries in the event of the other sources offering them more congenial suggestions.

These reasons give lead for us to produce H3 as a general hypothesis of a positive tendency, but we must not be surprised to find that no extensive library use can be shown to be a function of the high IL ability: possible virtues of habit or convenience (per TAM), course requirements, and so on might come into it. Naveed et al. (2023) concluded that the better use of information skills by medical students tended to be associated with increased and more imaginative use of the informational resources available to them, among which were a few requirements as of library resources, especially in a continuing life-long but independent of immediate course experience. It was suggested that in the course of the time, the students with IL skills made better not only of library sources but obtained more useful and various resources of use from libraries generally (for example, work through databases as by of self-knowledge applications). It is intended therefore that H3 should be an experiment to investigate whether, in this instance, higher standards of IL will be shown among us to be a correlational function of greater library resource use and various types.

In conclusion, the conceptual framework as illustrated in figure 1 proposes information need (H1), information seeking behaviour (H2), and information literacy skills (H3) as positive influences on Gen Z undergraduate students' usage of library information resources. These propositions combine findings from Wilson's model of information behaviour (with the concepts of need and seeking precluding use) with the ACRL/IL perspective (with the concept that skills allow for use) and TAM (which indicates that the underlying concept is that so long as the tools available for students' use are perceived as useful for their needs and students possess the skills for their easy use then the more engaged students will be, with library tools). The survey and analysis of the study are designed to test these propositions and provide empirical evidence on how these variables function in a Gen Z university context.

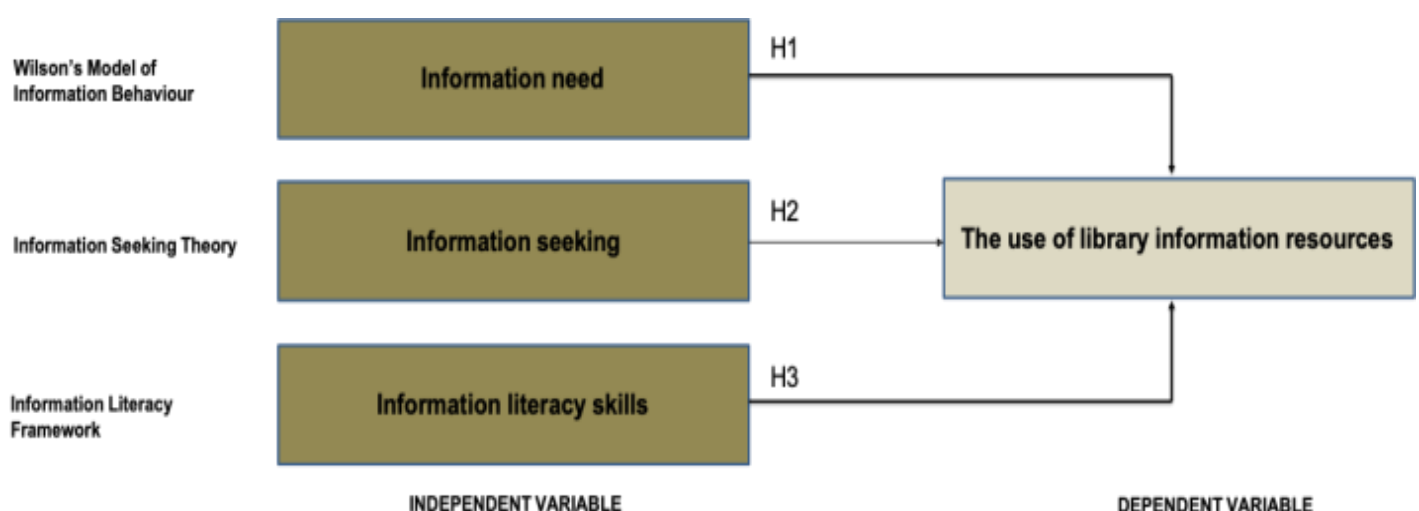


Fig. 1: The Conceptual Framework of Theory for Library Information Resource Use

METHODOLOGY

A cross-sectional survey design was employed to examine relationships between students' information behaviour and library use.

Population and Sampling

The relevant population was undergraduates at UiTM Negeri Sembilan. Through a purposive sampling procedure, students from across the various faculties were obtained to reach as wide a range of students as possible. The target sample was about 374 respondents based on sampling size calculations and previous research. The questionnaire was administered via the internet through university channels of communication and social media and academic groups with the help of lecturer networks to encourage further participation.

Instrument

The data were obtained through a standard questionnaire. The survey measured the following four constructs: the need for information, the information seeking behaviour, the information literacy skills, and the use of library information resources. The items were adapted from scales previously validated in research (Soroya et al., 2020; Weber et al., 2018) and in literature dealing with information behaviour. The responses were recorded on a Likert type of scale. The questionnaire was checked for face and content validity prior to administration by experts in the field and was pilot tested on a small group of students. A reliability test (using Cronbach's Alpha) was made on the pilot data to establish a value greater than that of 0.70.

Data Collection

The Conceptual Framework of the Theory of Library / Information Resource Use (Source: Based on literature reviewed). The final questionnaire was distributed via the Internet in the early part of the year 2020. Participation in the study was voluntary and anonymity guaranteed. Consent was obtained in an informed way via the Internet, and the respondents were forced to give consent before being able to complete the questionnaire. Over 400 undergraduates returned the completed questionnaire and the usable cleaned data for analysis was taken from approximately 374 of those respondents (and it was larger than the minimum of 374). The undergraduates responding were largely biased to younger respondents (mainly under 28 years and under).

Analysis Both the descriptive and inferential statistics were used for the data again. The reliability or not of the constructs was determined by calculating Cronbach's Alpha and composite reliabilities. Means and standard deviations were calculated to indicate the levels of need, the seeking, the literacy and the use. Structural Equation Modelling (SEM) was used with Partial-Least Squares (PLS-SEM) for testing the hypothesized relationships. The model produced the paths from Information Need, Information Seeking, Information Literacy to Library Resource Use. The PLS-SEM enabled us to check the validity of the constructs (convergent and discriminant) and the paths (β), the t-values and p-values of the constructs. The statistics were all done using SPSS (for the descriptives) and SmartPLS (for the SEM procedures). The standard ethical procedures were used for the study: voluntary participation, anonymised answers as for all respondents, and ethical approval was obtained from the university's research ethics committee.

RESULTS

Descriptive Statistics and Reliability

Among the 374 undergraduate responses, the majority (68.42% $n = 256$) were female students and male students comprised 31.58% ($n = 118$). The significant gender imbalance with over two-thirds female may reflect generally in the enrollment of the academic programmes being sampled or a greater survey response rate of female students. These gender proportions are important for the patterns of information behaviour, as previous studies have indicated a possible effect of gender on preference for resource use and information-seeking behaviour as indicated in Table 1.

TABLE 1 GENDER

Category	n	%
Male	118	31.55
Female	256	68.45

As shown in Table 2, most of the 374 generations Z undergraduates who replied (18-28) were in diploma-level programmes especially those which were applied, scientific and technical. The most popular was the Diploma in Microbiology which catered for 29.41% of the students thus showing there was great interest in the life sciences. Next was the Diploma in Halal Management with 16.04%, this shows that Gen Z is interested in cultural and regulatory issues. The Bachelor of Information Science (Hons) Library Management diploma and the Diploma in Sports and Recreation Management accounted for 8.02% which would illustrate that there is a balance of academic subjects to recreational ones. The Diploma in Textile and Clothing Technology catered for 7.49% of the students which would bear out the creative and practical approach to learning favored by Gen Z. Smaller proportions of students were enrolled for the Diploma in Recreation and Parks Management (6.68%), Bachelor of Science Mathematics (5.35%) and Bachelor of Information Science (Hons) Records Management (4.81%). The least popular was the Bachelor in Administrative Science (Hons) which had only 1.34% of the students responding to it.

Table 2: Programme Of Study

Program	n	Percent
Bachelor's in administrative science (Hons)	5	1.34
Bachelor of Information Science (Hons) Library Management	30	8.02
Bachelor of Information Science (Hons) Records Management	18	4.81
Bachelor of Science Mathematics	20	5.35
Diploma in Halal Management	60	16.04
Diploma in Microbiology	110	29.41
Diploma in Recreation and Parks Management	25	6.68
Diploma in Sports and Recreation Management	30	8.02
Diploma in Textile and Clothing Technology	28	7.49

It can be seen in Table 3 that all 374 respondents of this study were of the Generation Z age group which covers those in the age group of 17 to 28 years. This is consistent with those age groups of diploma and undergraduate students in Malaysian public universities. Most of the respondents (64.17%, n = 240) are aged below 20 years which would likely constitute students of first year or second year diplomas in the age groups of 17 to 19 years. These younger Gen Zs have usually been brought up to have more early exposure in digital environments, and tend to favour mobile-first applications, readable user interfaces and instant access to sources of academic references for future use. A big proportion (32.09%, n = 120) fall into the age range of 21 to 24 years, which will correspond generally with the advanced diploma students or students of bachelor's degree level. This group of students will generally have more independence in learning and a better knack for navigating databases or being able to evaluate the merits or verity of sources of information. A far smaller group (3.74%, n = 14) consist of students aged between 25 and 28 years, which cohort may comprise those studying non normal degree programmes, returning to study or late starters. Although the latter group also forms part of the Gen Zs, they may show some slight changes in manner of knowledge seeking because of the different experiences and responsibilities in life which they have experienced. Overall, the demographics as presented demonstrates that the study also takes into consideration the kind of academic habits and preferences which the digital native Gen Z group show (Putri et al., 2021; Alzahrani & Seth, 2023).

Table 3: Age

Age Group	n	%
< 20 years	240	64.17
21–24 years	120	32.09
25–28 years	14	3.74

Instrument Reliability Analysis

Internal consistency among each of the constructs in the present study pertaining to Generation Z undergraduate students was measured by Cronbach's Alpha coefficients (see Table 4). All constructs measured had coefficients above the commonly accepted criterion of 0.70 (Hair Jr et al., 2014) with a range of 0.856 for Information Literacy to 0.926 for Information Use. This demonstrates that the survey items have a high internal reliability in measuring the information behaviors of the members of Generation Z students. Convergent validity was measured using standardized factor loadings, Composite Reliability (CR) and Average Variance Extracted (AVE). All the factor loadings were above 0.70, and the respective AVE of the constructs exceeded the minimum criterion of 0.50, ranging from 0.540 to 0.673. The CR ranged from 0.854 to 0.911, pointing to the high internal consistency and high level of convergence of the various indicators (Hair Jr et al., 2014).

Table 4 Reliability and Convergent Validity

Construct	Items	Cronbach's Alpha	Factor loadings	Composite Reliability (CR)	AVE
Information Literacy (IL)	IL1	.856	0.83	0.911	0.673
	IL2		0.79		
	IL3		0.84		
	IL4		0.85		
	IL5		0.81		
Information Need (IN)	IN1	.903	0.76	0.873	0.58
	IN2		0.81		
	IN3		0.78		
	IN4		0.82		
	IN5		0.83		
Information Seeking (IS)	IS1	.892	0.72	0.854	0.54
	IS2		0.74		
	IS3		0.76		
	IS4		0.77		
	IS5		0.75		
Information Use (IU)	IU1	.926	0.80	0.89	0.62
	IU2		0.83		
	IU3		0.79		
	IU4		0.84		
	IU5		0.82		

The findings indicate that these items measure the theoretical constructs tested validly, i.e. information literacy, need, seeking and use, amongst members of digitally oriented Generation Z learners. Discriminant validity was measured using both the Fornell-Larcker test and the Heterotrait-Monotrait (HTMT) ratio tests which indicated that the constructs were empirically distinct from each other. Discriminant validity is said to exist when the square root of the AVE of the specific construct exceeded the correlation of this construct with the other constructs (Fornell and Larcker, 1981). This was established to be true for all constructs as can be seen in Table 5. In addition, the HTMT values were all below the conservative critical value of 0.85 alluded to in the literature as shown in Table 6, indicating that the constructs do not overlap excessively and are conceptually distinct from each other (Henseler et al., 2015). From these validation results, it can be inferred that the measurement model is both reliable and valid when examining the information behavior and library resource use among Generation Z undergraduates—whose members typify the class of digital usage, independence and dependence on rapid access to relevant information.

Table 5 Discriminant Validity (Fornell & Larcker)

Construct	IL	IN	IS	IU
Information Literacy (IL)	0.820			
Information Need (IN)	0.658	0.761		
Information Seeking (IS)	0.602	0.641	0.735	
Information Use (IU)	0.669	0.684	0.698	0.787

Table 6 Discriminant Validity (Htmt)

Construct	IL	IN	IS	IU
Information Literacy (IL)				
Information Need (IN)	0.790			
Information Seeking (IS)	0.796	0.840		
Information Use (IU)	0.760	0.794	0.849	

Assessment of Structural Model

This study employed Partial Least Squares Structural Equation Modeling (PLS-SEM), using Smart PLS 4.0 for estimating the relationships between the variables of information behavior for Generation Z undergraduates. This method allows examination both predictive capability and of hypothesis testing within the research model that was constructed.

As shown in the path coefficient diagram in Figure 2, and Table 7, the model consists of three major independent variables: Information Need (IN), Information Seeking (IS), and Information Literacy (IL), which all influenced the dependent variable, Information Use (IU). The coefficient of determination (R^2) for Information Use was .611, which suggests that 61.1% of the variance in use of library information resources by students can be explained by the three independent variables. Therefore, there is considerable support for both predictive capability in this model and for the soundness of this model in Generation Z students (ages 17-28), who display characteristics of digital native beginning students with independent learning styles (Putri et al., 2021; Alzahrani & Seth, 2023).

Hypothesis Testing Summary:

As shown in Table 7, the structural model path analysis tested three hypotheses to better understand how information behavior among Generation Z undergraduate students influenced their use of library resources. Results of the analysis, using Partial Least Squares Structural Equation Modeling (PLS-SEM), revealed that all three hypotheses were statistically significant and supported. In Hypothesis 1 (H1), the relationship between Information Need and Information Use revealed a moderate positive path coefficient ($\beta=0.235$) with a t-value of 2.313 and a highly significant p-value of 0.000, thus giving strong support for the hypothesis. This indicates that Generation Z students, in cases where they express an acute consciousness of the need for academic information, are more inclined to effective use of library resources.

The second hypothesis (H2), relating to the interaction of Information Seeking and Information Use, produces a statistically significant result ($\beta=0.117$, $t=10.763$, $p=0.021$), but of considerably smaller size. This would indicate that the proactive nature of these behaviors adopted by Gen Z students in the locating of information has a positive correlation with library use but is a behavioral aspect of relatively minor significance in comparison with the other variables. The greatest correlation is obtained with Hypothesis 3 (H3), where the information literacy variable (information literacy) has a significant correlation on Information Use ($\beta=0.536$, $t=4.165$, $p=0.000$). This denotes that the important variables pertaining to the abilities of the students in the evaluation, accessibility and ethical use of information has a high correlation with the library resource use of students.

These results point to the multifaceted nature of the Gen Z learners, whose exposure to information is determined by both the wants, and habits, patterns of behavior and skills gained through constant electronic

exposure. The leaders of libraries and academically that wish to engender improved student use of resources should therefore endeavour to specifically devote themselves to information literacy training and routines which lead to intuitive handling of information seeking which is efficient and accessible. Thus, we may require that academic support systems commence to become, in an iota of sense notwithstanding, commensurate and in phase with the evolving of wants and aspirations of each cohort of college students, with the result of evolving into deeper, more intensive and more independent efforts at academic inquiry.

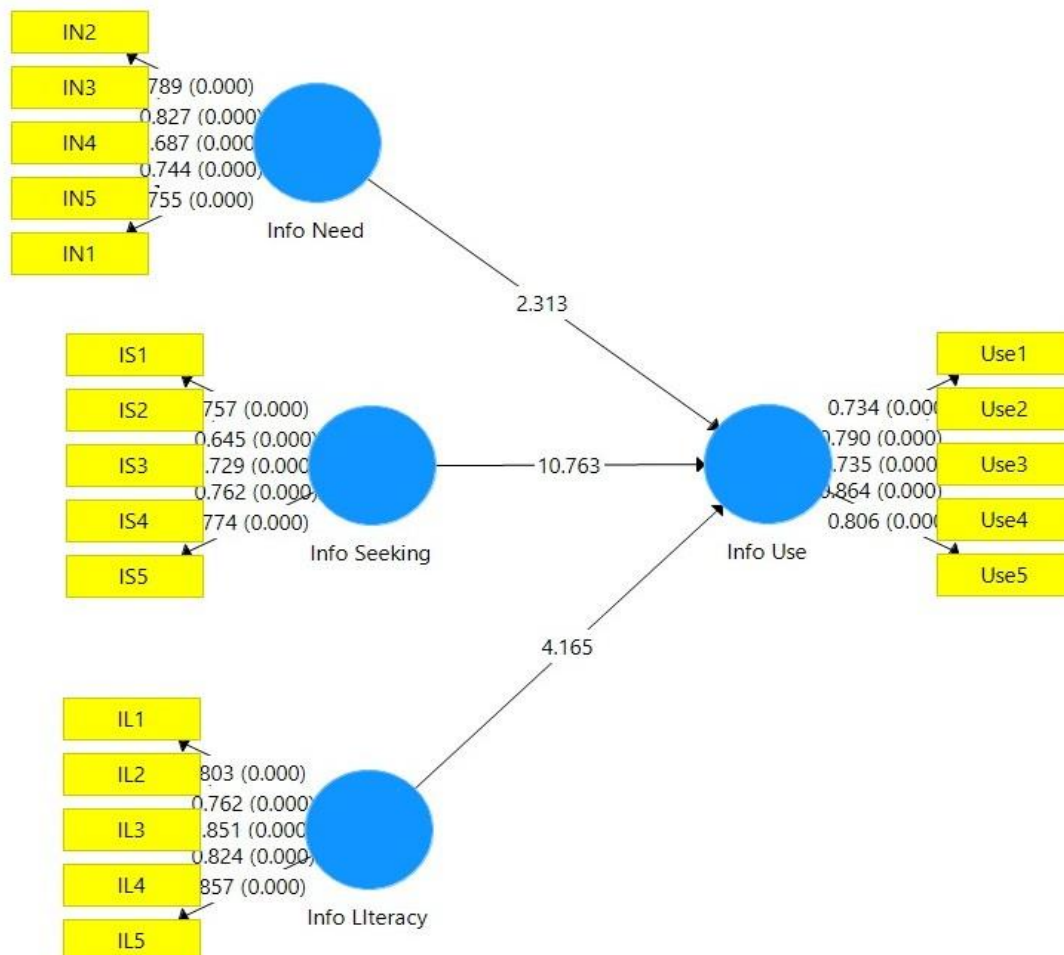


Fig 2: Information Behavior and Library Resource Use Model Among Generation Z Undergraduates

Table 7: Structural Model Path Analysis for Information Use of Library

Hypothesis	Relationship	Path Coefficient (β)	Standard Deviation (St.d)	t-value	pvalue	Hypothesis Result
H1	Information Need $\rightarrow$ Information Use	0.235	0.056	2.313	0.000	Supported
H2	Information Seeking $\rightarrow$ Information Use	0.117	0.050	10.763	0.021	Supported
H3	Information Literacy $\rightarrow$ Information Use	0.536	0.050	4.165	0.000	Supported

DISCUSSION

The results shed more light on the facets of information behaviour of Generation Z students at UiTM Negeri Sembilan and the implications for academic library systems. The strongest predictor of library use ($\beta = 0.536$, $p < 0.001$) was found to be information-literacy (IL) skills. Those students who can find, evaluate and use information, are much more likely to engage with library databases and electronic resources. This supports previous evidence that IL training allows for an enhancement of the ability to use academic databases (Akter &

Ahmed, 2024). Interestingly, in spite of indicating relatively high IL skills (mean ≈ 3.72) many respondents relied on open-web sources. This suggests that skill is not in itself sufficient for application. It is therefore recommended that libraries move away from isolated IL workshops, to continuous course-embedded IL delivery, to ensure that students can use such skills effectively within their disciplines.

Secondly, information need exerted a positive yet moderate effect on library use ($\beta = 0.235$, $p < 0.001$). Although recognising a need for academic information can prompt engagement, it does not automatically result in library use. Students may be conscious of their need but still opt for non-library sources due to convenience or lack of awareness. This outcome supports earlier findings (Htay et al., 2022; Nieminen et al., 2020) that high levels of information need do not necessarily translate into library use without adequate exposure to, or motivation for, library systems.

Thirdly, information-seeking behaviour was shown to have the least strong yet significant statistically relationship with library use ($\beta = 0.117$, $p = 0.021$). While active searching is an indicator of engagement, its contribution is less important than that of literacy and need. A small number of students were shown to employ advanced strategies using Boolean logic and discipline specific databases (Weber et al., 2018), many defaulting to simple searching on the web. This suggests that there is a need to create habits of guided searching through digital literacy programs and to encourage intuitive search tools in the first instance through the library interface.

In general the results suggest that effective library use depends on the accomplishment of two interrelated states of being: a felt information need, active information-seeking behaviour and the literacy skills needed to locate and evaluate credible sources. Lack of one of these factors mitigates against overall engagement. The synergy produced here corresponds closely with Wilson's (1999) model of information behaviour, which integrates theories about information seeking behaviour within a major information model, the Technology Acceptance Model (TAM). The latter suggests that the perceived ease of use and usefulness of systems are determinants of acceptance of the system.

In comparative context the UiTM findings reflect trends internationally. Generation Z undergraduates in countries such as Nigeria show the same low levels of library use and strong preference for information sourced from digital or through social media (Okwu et al, 2025). Education studies in Malaysia find that these students similarly expect libraries to change to become more digital, interactive and user-friendly. Because of this UiTM libraries will need to address accessibility issues, customer-centric design of digital environments, and create more positive perceptions of usefulness of these systems, to capture and retain Generation Z engagement.

CONCLUSION

This study provides empirical insights into the information behaviour of Generation Z undergraduates at University Teknologi MARA (UiTM) Negeri Sembilan, providing insights at the crux of students' preference for digital means of information provision and non-use of academic libraries. Despite high levels of information need and moderate search competency being reported, students' overall use of libraries is limited. Structural equation modelling indicates the dimension to exert the greatest influence over library use is information literacy (IL) skills ($\beta = 0.536$) with information need ($\beta = 0.235$) and information seeking behaviour ($\beta = 0.117$). The implications of these findings is that it is the ability to identify, evaluate and apply information rather than the ability to identify an information need that leads to effective use of library resources. However, even those students who show prowess in their IL skills prefer to use open-web and social media sources because of their immediacy and ease of access, and this indicates a wider generational change in learning behaviour. For UiTM Libraries to remain viable, the libraries need to change not to passive repositories of information but to activity based, user centred learning partners, integrating training in information literacy into academic curricula and tailoring services to match students' digital behaviours. The advance of IL knowledge will help keep academic libraries in the forefront of academic information provision, and bear out Wilson's model of information behaviour, which reinforces the model of the Technology Acceptance Model (TAM) whereby the perceived usefulness and the ease of access to the library systems will impact greatly on their adoption. In practical terms, this study provides a framework for Librarians and Educators to address the issue of earnest integration of IL knowledge, reviewing and redesigning their digital interfaces, and the fostering of students' regular information

use behaviour. It would be advisable that further research build on this work, exploring also the longitudinal effect of IL knowledge building, mobile app integration, with cross-University comparisons instituted to explore whether increased access to academic resources has any positive effect on measurable increased use.

RECOMMENDATIONS

Building on these findings, it is evident that UiTM libraries must adopt targeted strategies to bridge the gap between students' information needs and their actual use of library resources. The following recommendations are proposed to enhance information-literacy competence, improve system accessibility, and foster a culture of active engagement among Generation Z learners. Each strategy aligns with the study's empirical outcomes and provides a practical pathway for academic libraries to remain relevant and responsive in an increasingly digital learning environment.

Revitalise Information-Literacy (IL) Programmes

IL instruction should be repositioned as an integral part of academic coursework rather than a separate skill building exercise. Workshops, tutorials, and course-embedded tasks can guide students to apply IL competencies in real learning contexts-such as locating scholarly sources for assignments or evaluating information quality in research projects. Collaboration between librarians and faculty is crucial to ensure continuous reinforcement of these skills throughout students' academic progression.

Modernise Library Technology and Access

Library systems must reflect Generation Z's expectations for seamless and mobile-first experiences. Portals should feature intuitive interfaces, personalised dashboards, and AI-enabled virtual assistance. Continuous WiFi coverage, simplified authentication, and single-sign-on access will minimise barriers and promote consistent use. Interface design should prioritise ease of use and perceived usefulness in accordance with the Technology Acceptance Model (TAM).

Strengthen Social-Media Engagement

Libraries should actively connect with students through the platforms they use most. Regular and purposeful social-media updates-highlighting new collections, research tips, or student achievements-can increase visibility and relevance. Short videos, infographics, and interactive posts can draw attention to digital resources while positioning the library as an accessible and dynamic part of the academic community.

Align Resources with Curriculum Requirements

Continuous consultation with lecturers and students is needed to ensure that library holdings match evolving teaching and research priorities. Periodic needs assessments and user analytics can guide evidence-based acquisition decisions. Aligning digital collections with course syllabi strengthens the perception of the library as essential to learning outcomes.

Develop Collaborative and Experiential Learning Spaces

Reimagine library environments as hybrid learning ecosystems that combine physical and digital interaction. Flexible study pods, multimedia zones, and virtual collaboration platforms can foster teamwork and creativity. Integrating gamified tutorials or e-talks on database searching can further stimulate engagement and enhance students' sense of connection with the library.

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Authors' Contribution

The key investigation through methodology, data collection, formal analysis, and draft preparation was done by Muhamad Azrin Ismail. The conceptual guidance, supervision and validation was done by Mad Khir Johari Abdullah Sani and Noor Zaidi Sahid who also helped in the review and editing of the manuscript to be published. All authors were present throughout the final reading and gave consent to the manuscript.

Conflict Of Interest Declaration

We certify that the article is the Authors' and Co-Authors' original work. The article has not received prior publication and is not under consideration for publication elsewhere. This research/manuscript has not been submitted for publication nor has it been published in whole or in part elsewhere. We testify to the fact that all Authors have contributed significantly to the work, validity and legitimacy of the data and its interpretation for submission to Journal Intelek.

REFERENCES

1. Akter, T., & Ahmed, S. Z. (2024). University students' information literacy skills and impact of training in Bangladesh. *IFLA Journal*, 50(3), 620–632. <https://doi.org/10.1177/03400352241266181>
2. Al-Nuaimi, H., & Al-Emran, M. (2021). Technology acceptance model: Applications and extensions in education and e-learning research. *Education and Information Technologies*, 26(2), 1315–1334. <https://doi.org/10.1007/s10639-020-10312-0>
3. Banik, B., & Kumar, P. (2020). Information literacy skills and academic achievement of university students: An empirical analysis. *Library Philosophy and Practice*, 1–18.
4. Bartlett, J. C., Frissen, I., & Beheshti, J. (2020). Comparing academic and everyday-life information-seeking behaviour among millennial students. *CHIIR 2020 Proceedings*, 402–406. <https://doi.org/10.1145/3343413.3378006>
5. Borrego, Á., & Anglada, L. (2016). Faculty information behaviour in the electronic environment: Attitudes towards searching, publishing and libraries. *New Library World*, 117(3-4), 173–185. <https://doi.org/10.1108/NLW-11-2015-0089>
6. Bothma, T. J. D., & Fourie, I. (2024). Contextualised dictionary literacy, information literacy and information behaviour in the e-environment. *Library Management*. <https://doi.org/10.1108/LM-08-20230082>
7. Cain, J., Loewenstein, G., & Harbaugh, W. (2022). Digital engagement and cognitive patterns among Generation Z learners. *Computers & Education*, 190, 104156. <https://doi.org/10.1016/j.compedu.2022.104156>
8. Chen, X., Sin, S. C. J., & Theng, Y. L. (2022). Why we share fake news: Understanding the role of information literacy and social factors among college students. *Library & Information Science Research*, 44(4), 101143. <https://doi.org/10.1016/j.lisr.2022.101143>
9. Dalal, H. A., Taylor, A., & Whitfield, S. (2025). Assessing students' information literacy: Attitudes and perceptions of college students across generations. *College & Research Libraries*, 86(3), 255–269.
10. Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (2024). User acceptance of computer technology revisited: Thirty-five years of the Technology Acceptance Model. *Information & Management*, 61(1), 103724. <https://doi.org/10.1016/j.im.2023.103724>
11. Devi, S., Ramli, R., & Malek, Z. (2024). Mobile learning and self-directed behaviour among Southeast Asian Gen Z students. *Journal of Digital Learning Research*, 8(1), 45–59.
12. Dikeç, G., Yildiz, S., & Korkmaz, S. (2023). Perceptions of Generation Z university students on future and technology adaptation. *International Journal of Education and Development*, 43(2), 115–132.
13. Dolničar, D., & Podgornik, B. B. (2023). Factors influencing information literacy of university students.

16. In Higher Education: Reflections from the Field (Vol. 2).Intech Open.
<https://doi.org/10.5772/intechopen.100364>
17. Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39–50. <https://doi.org/10.2307/3151312>
18. Gross, M., & Latham, D. (2012). What's skill got to do with it? Information literacy skills and self-views of ability among first-year college students. *Journal of the American Society for Information Science and Technology*, 63(3), 574–583. <https://doi.org/10.1002/asi.21681>
19. Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2014). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. Sage.
20. Han, L., & Cmor, D. (2016). Does library instruction impact student success? A case study of university undergraduates. *Evidence Based Library and Information Practice*, 11(3), 54–67.
21. Head, A. J., & Eisenberg, M. B. (2010). How college students seek information in the digital age. *Project Information Literacy Report*. <https://projectinfolit.org>
22. Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115–135.
23. Htay, M. N. N., Parial, L. L., Tolabing, M. C., Dadaczynski, K., Okan, O., Leung, A. Y. M., & Su, T. T. (2022). Digital health literacy, online information-seeking behaviour, and satisfaction of COVID-19 information among the university students of East and South-East Asia. *PLOS ONE*, 17(4), e0266276. <https://doi.org/10.1371/journal.pone.0266276>
24. Ibenne, S. K., Simeonova, B., Harrison, J., & Hepworth, M. (2017). An integrated model highlighting information literacy and knowledge formation in information behaviour. *Aslib Journal of Information Management*, 69(3), 316–334. <https://doi.org/10.1108/AJIM-09-2016-0148>
25. Masrek, M. N., & Gaskin, J. E. (2016). Assessing users' satisfaction with web digital library: The case of University Teknologi MARA. *International Journal of Information and Learning Technology*, 33(1), 36–56. <https://doi.org/10.1108/IJILT-06-2015-0019>
26. Naveed, M. A., & Mahmood, M. (2021). Correlatives of business students perceived information literacy self-efficacy in the digital information environment. *Journal of Librarianship and Information Science*, 54(2), 294–305. <https://doi.org/10.1177/09610006211014277>
27. Naveed, M. A., Iqbal, J., Asghar, M. Z., Shaukat, R., & Kishwer, R. (2023). How information literacy influences creative skills among medical students? The mediating role of lifelong learning. *Medical Education Online*, 28(1), 2176734. <https://doi.org/10.1080/10872981.2023.2176734>
28. Okwu, E., Adeniran, O., & Ibrahim, M. (2025). Patronage and use of library resources among Gen Z undergraduates in Nigerian universities. *Journal of Digital Learning and Education*, 5(1), 67–77. <https://doi.org/10.52562/jdle.v5i1.1492>
29. Oladunjoye, M. T., Omiunu, O. G., & Yomi-Owojori, T. O. (2018). Information behavior of students towards the use of library information resources in universities in Oyo State, Nigeria. *Library Philosophy and Practice (e-journal)*, Article 1834. University of Nebraska – Lincoln. <https://digitalcommons.unl.edu/libphilprac/1834>
30. Olatoye, O. I. O., & Muchaonyerwa, N. (2020). Information needs and behavior of undergraduate students towards the utilization of electronic information resources in selected South African universities. *Journal of Human Ecology*, 69(1-3), 30–37. <https://doi.org/10.31901/24566608.2020/69.1-3.3185>
31. Oseghale, O. R., Ochie, C., Oyelere, M., & Nyantakyiwaa, A. (2025). Class participation points and postgraduate business students' engagement: The case of a UK university. *Innovations in Education and Teaching International*, 62(1), 86–101. <https://doi.org/10.1080/14703297.2023.2279576>
32. Ozor, A., & Toner, J. (2022). Information literacy behavior and practice: An assessment of undergraduate students at Ada College of Education, Ghana. *Journal of Library Administration*, 62(1), 132–151. <https://doi.org/10.1080/01930826.2021.2006992>
33. Salubi, O., Udem, O., & Tella, A. (2018). Library utilization and information behaviour of Generation Z students in Nigeria. *Library Philosophy and Practice*, 1–18.
34. Seemiller, C., & Grace, M. (2017). *Generation Z Goes to College*. Jossey-Bass.

35. Subaveerapandiyan, A., Lee, S., & Lim, T. (2023). Integrating information literacy instruction in ASEAN higher education: Effects on student engagement and outcomes. *Asian Journal of Information Literacy*, 9(4), 101–119.
36. Tella, A., Mutula, S., & Salubi, O. (2020). Students' use of YouTube for academic learning in Nigerian universities. *Library Hi Tech News*, 37(6), 1–7. <https://doi.org/10.1108/LHTN-04-2020-0033>
37. Vighnarajah, F. A. H., Abd Aziz, N., & Siew Lee, O. (2016). Profiling information-seeking behaviour of distance learning students in Wawasan Open University. *Asian Association of Open Universities Journal*, 11(2), 122–135. <https://doi.org/10.1108/AAOUJ-09-2016-0026>
38. Walton, G. (2017). Information literacy is a subversive activity: Developing a research-based theory of information discernment. *Journal of Information Literacy*, 11(1), 137–155. <https://doi.org/10.11645/11.1.2188>
39. Weiner, S. A., Stephens, G., & Nour, A. Y. M. (2011). Information-seeking behaviors of first-semester veterinary students: A preliminary report. *Journal of Veterinary Medical Education*, 38(1), 21–32. <https://doi.org/10.3138/jvme.38.1.21>
40. Wood, J. A. (2024). Library advocacy: Ecosystem concepts can provide a necessary framework for future responsive libraries. *Maine Policy Review*, 33(2), 1–6. University of Maine Digital Commons. <https://digitalcommons.library.umaine.edu/mpr/vol33/iss2/18>