

Needs Analysis for Developing an Interactive e-Glossary in a Consumer Behavior Course

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Abstract

This study investigates the needs and preferences of students in developing an interactive e-glossary tailored specifically for a Consumer Behavior course. A structured bilingual questionnaire was administered to collect data on students' demographic profiles, mobile technology skills, learning experiences, and challenges encountered with Consumer Behavior terminology. The findings reveal that students frequently struggle with unfamiliar terms and often find traditional learning resources such as textbook glossaries ineffective and unengaging. Most respondents expressed a strong preference for a digital glossary that includes clear definitions, real-world examples, and topic tagging to facilitate better understanding. Additionally, interactive features such as quizzes, progress indicators, and gamification elements were highly desired to enhance motivation and engagement. Participants favored a mobile-optimized or hybrid platform that offers intuitive navigation and efficient search capabilities, reflecting their technological habits and preferences. Importantly, students emphasized the need for glossary content to be closely aligned with the course syllabus, thereby increasing relevance and supporting exam preparation. These insights provide a robust foundation for designing an interactive e-glossary that not only addresses students' learning challenges but also fosters deeper engagement with Consumer Behavior concepts. By integrating technology with pedagogical needs, this study contributes to the development of innovative educational tools that enhance learning outcomes in higher education.

Key Words: *interactive, glossary, consumer behavior*

1.0 Introduction

Consumer Behavior is one of the courses that must be taken by students of the Diploma in Business Studies (DPM) at Politeknik Kuching Sarawak. This course is also offered to students in other diploma programs related to the business industry at various polytechnics. In consumer behavior classes, students usually come across new terms and difficult ideas that are necessary to understand the material. Conventional resources, like class notes and textbook glossaries, are frequently seen as uninteresting, ineffectual, and challenging to comprehend. These restrictions make it difficult for students to understand, remember, and use important terms, which causes problems when they are revising and applying them in the real world. Even though mobile devices and digital platforms are widely available, there aren't many interactive, user-friendly e-glossaries that are especially suited to the needs of consumer behavior learners. Students still struggle to learn vocabulary and prepare for tests in the absence of an interactive, goal-oriented online solution that includes straightforward definitions, real-world examples, and interesting features like quizzes and progress tracking.

Terminology used in the context of consumer behavior frequently draws from marketing, sociology, and psychology. The necessity for glossaries that go beyond definitions to include examples and case studies is highlighted by the possibility that students will find it difficult to relate abstract terms to real-world applications (Solomon, 2018; Elgar Encyclopedia of Consumer Behavior, 2024). Needs analysis data from consumer behavior students reveal a strong preference for glossaries that are interactive, easy to navigate, and directly linked to course content and assessments. A systematic needs analysis is therefore required to establish the specific needs and desires of students as a foundation on which an effective and efficient interactive e-Glossary can be successfully designed to support enhanced learning performance in consumer behavior courses. Digital glossaries have emerged as effective tools to support vocabulary acquisition and conceptual clarity in higher education. Research indicates that electronic glossaries, especially those integrated with interactive features, improve students' retention and understanding of specialized terminology (Al-Jarf, 2020). Without a targeted,

interactive digital solution that incorporates simple definitions, real-world examples, and engaging features such as quizzes and progress tracking, students continue to struggle with terminology acquisition and exam preparation.

The ADDIE model (Analysis, Design, Development, Implementation, and Evaluation) provides a systematic framework for instructional design that could guide both the needs analysis process and the design implications for developing effective educational tools (Gagne et al., 2005). This model represents a dynamic, flexible guideline for building effective training and performance support tools, making it particularly relevant for developing interactive e-glossaries that align with pedagogical objectives and learner needs.

This study aims to analyze the needs and preferences of students to inform the design of an interactive e-Glossary tailored for a Consumer Behavior course. By systematically investigating students' learning experiences, technological habits, and desired features, this research provides a foundation for developing a tool that aligns with both pedagogical goals and user expectations. The analysis phase of ADDIE would systematically examine learner characteristics, content requirements, and technological constraints.

2.0 Materials and Methods

To collect systematic data on student demographics, technological readiness, and educational preferences, quantitative survey methods are frequently employed (Brown, 2009; Creswell, 2014). This study conducted a needs analysis among students enrolled in Politeknik Kuching, Sarawak's Diploma in Business Studies program using a quantitative survey approach. Ninety students, mostly between the ages of twenty and twenty-one, were given a structured questionnaire. In addition to gathering demographic data, the survey investigated students' ownership of mobile devices, internet accessibility, device usage motivations, and present experiences and difficulties in understanding consumer behavior. In order to collect information on students' familiarity with course terminology, their preferred learning resources, and the efficacy of current tools, the questionnaire contained both multiple-choice and Likert-scale items.

Data collection was conducted during regular class sessions, ensuring a high response rate and minimizing disruption to students' schedules. Respondents were informed of the study's purpose and given confidentiality assurances; participation was anonymous and voluntary. To find trends in device usage, learning challenges, and preferences for e-glossary features and content delivery formats, the gathered data was descriptively analyzed using frequency distributions and percentages. The analysis's findings gave researchers a thorough grasp of students' technological readiness and their unique requirements for an interactive e-glossary in the Consumer Behavior course.

3.0 Result and discussions

3.1 Findings

This chapter explains the results of the data analysis based on the responses to the survey that has been conducted.

a) Descriptive analysis and Demographic data

The respondents' background describes the frequency distribution and percentage of respondents based on gender and age. Table 3.1 shows the frequency distribution and percentage of respondents by gender. From the table, the number of male respondents is 28, while the number of female respondents is 62.

Table 3.1: Frequency distribution and percentage of respondents by gender

Gender	Frequency	Percentage (%)
Male	28	31.1
Female	62	68.9

Table 3.2 The number of respondents surveyed by age.

Age	Frequency	Percentage (%)
18-19	2	2.2
20-21	83	92.2
22 and above	5	5.6

Based on Table 3.2, the number of respondents aged 20-21 years old is the highest, that is, 83. While for respondents aged 22 and above and 18 to 19, respectively, a total of 5 and 2 were recorded.

Quantitative data collection was used for this research. A survey for the purpose of the research was distributed among 90 students of Diploma of Business Studies in Politeknik Kuching, Sarawak. The researchers were asked several questions to answer the objective of the research. Among the questions are the following:

b) Need Analysis

i. Ownership of Mobile Based on Type

This survey is conducted to determine device ownership based on type. Table 3.3 indicated that 89 out of 90 respondents (98.9%) chose to have a smartphone, while only 9 respondents (10%) had a tablet.

Table 3.3: Ownership of mobile devices based on type

Respondent's Mobile Device Type	Percentage
Smart Phone	98.9
Tablet	10

Table 3.4 shows that 55.6%, which is 50 from 90 respondents, had Apple iOS operating system, and the remaining 44.4% had Android for their device.

Table 3.4: Operating system

Operating system	Percentage
Apple iOS	55.6
Android	44.4

ii. Internet Accessibility preference

For internet accessibility, Table 3.5 showed that the most popular internet access among respondents was through home Wi-Fi, which is 53.4%, followed by the PKS Wi-Fi facility provided in the institution, showing at 27.3%. 10.2% of respondents have chosen other free hotspots and their facility provided in the institution preference, while broadband is 13.6%. This percentage of internet accessibility preference may be led by the fact that the connection can be reached more than just the campus limited area.

Table 3.5: Internet accessibility preference

Internet accessibility	Percentage
Home wifi	53.4
PKS Wifi	27.3
Broadband	13.6
Other Free Hotspots	10.2

iii. Reasons for Having Mobile Devices

The respondents were asked about the reasons for having a mobile device. Table 3.6 described the results, with most of them selecting communication as the main reason for having mobile devices. This is followed by education at 16.7% and entertainment at 13.3%, respectively. Meanwhile, none of the respondents choose business.

Table 3.6: Reasons for having mobile devices

Reasons for having mobile devices	Percentage
Communication	65.6
Education	16.7
Entertainment	13.3
Business	nil

iv. Current learning experience.

The second part was to analyze the current learning experience of the respondents towards the consumer behavior course. 43.3% of the respondents are occasionally unfamiliar with the terms in consumer behavior classes. Meanwhile, 30% and 22.2% frequently and rarely respectively, only 4.4%, are always unfamiliar with the terms. 51% of them can remember key terms and concepts in consumer behavior.

76.7% of respondents currently look up consumer behavior terms by internet browsing, followed by class notes, which is 66.7%. Most respondents ask peers or instructors were 40% and 31.1% of them look up the terms from You Tube video, while mobile apps and textbook glossaries were 28.9% and 15.6%, respectively.

64.4% of the respondents somewhat find that existing resources are somewhat effective in helping them to understand the terminology. 47.8% of respondents faced difficulties with unfamiliar terms, and even 36.7% struggled to connect terms with the real world when studying consumer behaviour. 30% of respondents find difficult-to-understand textbook definitions and 25.6% of respondents selected a lack of interactive or engaging learning tools as another difficulty for them. Only 24% are hard to revise for exams.

v. Perceived need for an e-Glossary.

The part of this needs analysis survey was meant for analyzing perceived need for an e-glossary. Only 26% of the respondents think an e-glossary for consumer behavior would help them to understand the subject better, whereas 72% prefer it to be in PDF or e-book form, and 53.3% choose mobile apps.

vii. Desired features.

Definitions in simple languages become the main selection for desired features in an e-glossary. While real-life marketing examples, terms and definitions, quizzes and self-tests, and chapter or topic tags are mostly selected. The search function becomes the least choice for the desired features.

77% of the respondents feel that mini quizzes after each term would increase their motivation to use the e-glossary, and 66.7% select flashcard quiz mode, followed by glossary search by topic filter at 50%. Leaderboard or challenge friends and progress tracker are 37.8% and 35.6%, respectively. Other than that, 84.4% of the respondents also prefer the e-glossary terms to be linked to topics in the course syllabus.

viii. Content Delivery and interfaced preference

66.7% of the respondents prefer to have an e-glossary in the form of a hybrid (a combination of non-web-based and web-based apps). While 25.6% prefer non-web-based and 7.8% prefer web-based apps only.

As for navigation in table 3.7, scrolling up and down was rated the highest preference (51.1%) among others. This might be considered as the limitation of the smartphone screen size, as this had been chosen earlier as the preferable mobile device by the respondent. Furthermore, the search button and previous and next buttons are both selected, which is 16.7%, while 15.6% chose page flipping.

The main menu in the form of a list of words only was chosen the most by the respondents, was 56.7%, while 43.3% selected a list of the alphabet only.

As mentioned earlier, the smartphone had been chosen as the preferred mobile device; this is parallel with the result of apps designed for mobile phones being most liked compared to tablets.

Table 3.7: Content Delivery and Interface Preferences

Interface preference	Types of App	Percentage
I prefer to have the app in the form of	Hybrid (combination of both)	66.7
	Non-web-based	25.6
	Web-based app	7.8
I prefer the navigation of the content app using	Scroll up and down	51.1
	Search button	16.7
	Previous and next buttons	16.7
	Page flipping	15.6
I prefer the Main Menu in the form of both	List of words only	56.7
	List of the alphabet only	43.3
I prefer to have the app designed for both	Mobile phone	92.2
	Tablet	7.8

ix. Preferable features for designed mobile app

Preferable features for the designed mobile app are rated by the respondents in Table 3.8; the list of related terms was rated 45.6%. Next, the features that recorded a 42.2% rating from the respondents were both the literal meaning of the term and terms arranged alphabetically, followed by search functionality, which was strongly agreed upon by the respondents were 40%.

Table 3.8: Preferable features for designed mobile app

Features	Percentage
List of related terms	45.6
Literal meaning of term	42.2
Terms arranged alphabetically	42.2
Search functionality	40%

3.2 Discussions

The findings from the needs analysis underscore the critical role of mobile accessibility and digital literacy in enhancing student learning experiences, particularly in the context of vocabulary acquisition within the Consumer Behavior course. The unanimous smartphone ownership among respondents, evenly divided between iOS and Android platforms, and widespread access to reliable internet via home or institutional Wi-Fi, point to a high level of digital readiness. This aligns with global mobile learning trends reported by Crompton and Burke (2018), who emphasize the centrality of mobile technologies in contemporary education for promoting learner engagement and flexibility. These findings directly inform the Analysis and Design stages of the ADDIE model, indicating that any instructional intervention, such as an e-glossary, must be mobile-optimized to accommodate learners' preferred access points and technological ecosystems (Traxler, 2018).

However, despite this technological readiness, the survey data also revealed substantial cognitive challenges in students' ability to grasp and apply subject-specific terminology. Most respondents reported frequent difficulty with unfamiliar terms and an inability to contextualize textbook definitions in real-world scenarios. These issues highlight a significant pedagogical gap, reinforcing Nation's (2013) assertion that vocabulary remains a fundamental barrier to deeper learning when instructional materials lack interactivity and relevance. This insight contributes to the Design and Development phases of the ADDIE framework, calling for instructional materials that integrate principles of contextual learning, cognitive scaffolding, and active engagement.

Students expressed preferences for simple, accessible language, real-life examples, and interactive tools such as quizzes and flashcards suggest a strong demand for constructivist learning features that promote deeper cognitive processing. These preferences are supported by Al-Fraihat et al. (2020), who emphasize that digital tools with interactive and learner-centered features are more likely to sustain motivation and facilitate meaningful learning outcomes. Moreover, although only a minority explicitly believed an e-glossary would directly improve their understanding, the demand for embedded, interactive, and curriculum-aligned content speaks to the importance of Implementation strategies that integrate seamlessly with existing course structures (Bower, 2016). The expressed preference for hybrid content delivery combining online and offline access also aligns with Hockly's (2013) recommendations for inclusive and resilient educational technology design. This consideration is especially relevant during the Implementation and Evaluation stages of the ADDIE model, where attention to accessibility, usability testing, and iterative feedback is crucial to ensuring sustained learner engagement and effectiveness.

4.0 Conclusions

This need needs analysis provides valuable insights that go beyond technological readiness to highlight specific pedagogical needs and learner preferences. These findings support the creation of a mobile-friendly, contextually rich, and pedagogically grounded e-glossary. When aligned with instructional design models such as ADDIE, the data not only inform design choices but also ensure that the intervention is systematically developed, implemented, and evaluated to enhance student learning outcomes in a measurable and sustainable way.

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