USER EXPERIENCE EVALUATION OF A STUDENT INFORMATION SYSTEM

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ABSTRACT

Today's academic environment, many students use technology as an integral aspect of their studies; as a result, higher education (HE) institutions have been compelled to design student information systems (SIS) that can facilitate students' online learning processes. However, SIS must be aligned with user needs and should provide a pleasant user experience (UX) that enables students to attain their goals. The current research looked at how students rated an SIS. The study was based on the responses of 307 students at Kuwait's College of Business Studies (CBS) provided within a questionnaire. The survey's findings revealed that students had a generally favourable impression of the SIS, with perceptions of the pragmatic quality of the system being somewhat higher than the perceptions of hedonic quality. The findings of this research may be valuable to authorities working to design improved SIS, particularly in terms of the hedonic system components.

KEYWORDS

Student Information System, Usability, e-learning, Higher Education, Information and Communication Technology, HE.

1. INTRODUCTION

Usability assessments represent just one of several methodologies that allow a user experience (UX) professional to assess a product or system's usability within various degrees of detail. Usability testing is sometimes mistaken for usability, which is a comprehensive approach to creating and assessing systems for people as a whole. The words usability, UX, and interactivity are often conflated, as detailed in previous chapters; given that the subject is continually advancing, this is unsurprising. Usability testing as a methodology is not to be confused with the outcomes, which translate into useable and useful items. User behaviour, performance, and satisfaction are all measured objectively and subjectively within usability evaluations. Usability testing is addressed by some of the systems, but this typically only takes place towards the conclusion of the development cycle when it is too late in the development cycle to make modifications based on the findings of usability tests (Mandel, 2002). Constructing a great UX involves evaluating usability and producing useable items. Despite the uncertainty stated in the present literature, (Rosenzweig, 2015) claims that usability and UX are the same.

Researchers typically focus on the quality of a specific interactive system on two levels: pragmatic and hedonic (Hassenzahl, Platz, Burmester, & Lehner, 2000). The degree to which the user interface facilitates a user's efforts to obtain the needed results is related to the pragmatic quality of the system (Zimmermann, 2008; Lewis & Sauro, 2020). Hedonic quality is a non-task-oriented quality metric that assesses how engaging, appealing, and enticing the user interface is (Hassenzahl, 2008). Until recently, UX evaluations were mostly concerned with analyzing short-term experiences. However, as the user-product interaction has developed, the hedonic parts of

UX have increasingly taken precedence over the pragmatic elements. As such, we created a UX Curve approach for assessing long-term user experience that places a specific emphasis on hedonic quality. According to Kujala et al. (2011), the hedonic quality of a system is generally considered to be more important than the pragmatic dimension. In this regard, they developed a UX model that focuses on hedonic quality and can be used to evaluate UX over time (Kujala, Roto, Väänänen-Vainio-Mattila, & Sinnelä, 2011). These factors are introduced in this study to determine how satisfied users are with a certain system and product (Hinderks, Schrepp, &Thomaschewski, 2018; Rauschenberger, Schrepp, Cota, Olschner, & Thomaschewski, 2013; Schrepp, Hinderks, & Thomaschewski, 2017). Student information systems (SIS) that perform well increase students' productiveness and efficiency (Demirkol & Seneler, 2018). These systems allow students to manage their information, such as enrolling in classes, monitoring their grades, seeing transcripts, and creating progress reports. Without access to a functional SIS, students are more likely to make poor judgments. As a result, students must make good use of accessible information to make better-informed decisions about their academic intentions and progress.

The Public Authority for Applied Education and Training (PAAET), which consists of five Kuwaiti institutions, created and deployed the SIS system to replace the existing, non-web-based system. The system has now been in operation for approximately 15 years. As such, it is critical to assess at this stage to understand user experience and analyze system procedures and usability concerns. SIS is frequently designed without a usability analysis, which might have an impact on the resulting quality of the system design. According to previous studies, the fundamental characteristics of SIS have a considerable impact on stakeholders' assessment of their value (Guarin, Guzman, & Gonzalez, 2015; Widodo, Kertahadi, & Suyadi, 2015). As a result, identifying and evaluating the important components of SIS as part of attempts to assess their advantages is critical. While user views of a variety of information systems have been studied in the past, there is a dearth of usability studies that focus explicitly on the creation of SIS and students' evaluations of their ease of use and worth (Demirkol & Seneler, 2019).

To date, very little research on SIS has been performed in the Kuwait context. The authors of this study combed through available literature to acquire a better understanding of current SIS procedures. To test usability difficulties and identify the challenges and potential of the present SIS at PAAET, two research techniques were used: qualitative and quantitative. A survey was conducted with 307 students from the College of Business Studies. Maintaining an up-to-date system that can meet the demands of students and faculty while also ensuring the system is intelligible and user-friendly is critical to keeping academic procedures and operations flowing smoothly. It's crucial to investigate usability from the perspective of Human-Computer Interaction (HCI). The results of the usability assessment will facilitate efforts to enhance and reinforce the system's efficacy. To compare these features, pragmatic and hedonic usability quality factors were explored. The findings of this inquiry may be useful to system developers and may aid in the development of future versions of the SIS system. The remainder of the paper is structured as follows: The next section presents findings of the extant literature that is relevant to this study. Section Three outlines the research process. The study findings are presented in Section four, while an in-depth discussion of the findings is presented in section five. Section 6 concludes the paper and forwards recommendations for future research directions.

2. RELATED STUDIES

Student information systems (SIS) are critical to the effective administration of higher education (Gurkut & Cemal Nat, 2017). They are routinely regarded as critical in the management of an institution's financial and academic aspects. Given the extensive usage of SIS in academic settings, it is necessary to evaluate approaches for increasing their productivity (Mir & Mehmood, 2016; Demirkol & Seneler, 2019). SIS improves educational development in addition

to supporting the effective operation of the organizational context and assisting students in achieving their goals (Demirkol & Seneler, 2018). It's critical to assess SIS's usefulness from the perspective of human-computer interaction. The usability of educational software and platforms has been extensively studied in the literature (Gemmell & Pagano, 2003; Nordaliela, Suriani, & Nathaniel, 2013; Sherifi, 2015; Alzahrani, Mahmmud, Ramayah, Alfarraj, & Alalwan, 2017; Gurkut & Cemal Nat, 2017; Tabrizi, Tufekci, Gumus, & Cavus, 2017; Demirkol & Seneler, 2019). Studies have consistently found that developers must have a thorough grasp of end-user needs to construct systems that are well-received.

According to (NIELSEN, 1990), usability focuses on comprehending users, which is linked to the acceptability of any technology. As a result, developers must understand target users to create better and more useful solutions. Some studies have examined methods of designing Student Information Systems, while others have looked at how to assess them in terms of usability, user experience, and perceptions. The design and development of a Novel SIS were presented in a study by Hassan (2018). The problems connected with the manual procedures utilized to maintain student information at the University of Diyala were the subject of his research. The study, which intended to boost efficiency and accuracy by using this new SIS, also aided college management in speeding up the decision-making process. In addition, Hashim and Mohamed (2013) created a Student Information System for the Electronics & Computer Engineering Faculty. They explained the procedures that must be taken for the system to function effectively. Their system was designed to replace the conventional student information system by capturing and updating students' records. They expected this method to contribute to new understanding in the industry by making it easier to use and allowing for improved planning and scheduling.

In terms of SIS usability, research by Gemmell and Pagano (2003) looked into students' perspectives and attitudes towards the available systems. The goal was to conduct a usability test at Salford University to better understand current business issues. The researchers circulated a questionnaire to 84 users, and the results validated certain usability issues, as well as recommended that user capabilities be assessed. Another research study (Nordaliela, Suriani, & Nathaniel, 2013) looked into the usefulness of SIS in a public university setting. A questionnaire was used to collect data from 132 Computer Science students. The usability criteria utilized by the authors involved a factor analysis, which included user perceptions of factors such as usefulness, speed, and user interface. The findings showed that numerous aspects of usability, such as the value of information and regularly acquired system operations, have an impact on user engagement. Tabrizi and colleagues (2017) conducted research at the Near East University to assess the usefulness of SIS. The results gave suggestions for the SIS developer team to consider for future versions of SIS, such as upgrading the UI and making the system more appealing. In addition, (Demirkol & Seneler, 2018) investigated the usefulness of SIS at a Turkish institution. The researchers were particularly interested in the reactions of students, as well as their efficiency and perceptions of system usefulness. Designing a useful SIS system is critical; unfortunately, very little research has been performed in this regard, particularly in Arab universities. Mir and Mehmood (2016) surveyed 173 students at Allama Iqbal Open University to assess information quality, system quality, service quality, perceived usefulness, intent to use, and user satisfaction. The majority of students were happy with the system's operation and technological standards, but not so much with the information and system outputs (Mir & Mehmood, 2016). Eludire (2011) conducted a similar study that looked into SIS usability difficulties such as delayed student outcomes, failed course enrollment, and a lack of accuracy. He proposed that the system be improved to assist the academic institution in achieving greater results. Furthermore, Farid (2016) investigated how the personnel and students of the Faculty of Oil and Minerals in Yamen used the student information system.

SIS are important in the administration of higher education institutions, according to Gurkut and Cemal Nat (2017). Their study looked at how academic and administrative employees viewed information presentation, as well as the SIS system and information quality. They gathered data from 120 users and used regression and factor analysis to assess the results. User satisfaction is positively connected with both system and information quality, according to the findings. Information delivery, on the other hand, had no direct or indirect influence on customer satisfaction (Gurkut & Cemal Nat, 2017). Bayangan-Cosidon (2016) evaluated the effectiveness of SIS at Kalinga State University to increase the productivity of the SIS in place. To obtain insights into the users' impressions of the system, they used an interview approach. They concluded that the system in existence met five usability criteria: utility, functionality, reusability, maintainability, and security (Bayangan-Cosidon, 2016).

The user's contact with a product, as well as its pragmatic and hedonic (pleasure) features, form the basis of user experience (UX). Until recently, UX evaluations were mostly concerned with analyzing short-term experiences. However, as the user-product interaction develops, the hedonic parts of UX appear to take precedence over the pragmatic elements. To that aim, (Kujala, Roto, Väänänen-Vainio-Mattila, & Sinnelä, 2011) presented research in which the UX Curve was employed to assess the UX of Facebook and mobile phones. The results demonstrated that the UX Curve approach is more successful at detecting hedonic components of UX than a questionnaire. They recommended that practitioners and researchers who wish to better understand developing UX and build better products should adopt this strategy.

Usability is a term that is commonly used to describe the quality of usage. Trialling this necessitates a focus on accomplishment, as well as the method in which it is used to suit a pragmatic approach to the attainment of behavioural goals (Zimmermann, 2008). Hassenzahl believed that trialling usability approaches disregarded the variables of stimulation, user preferences, and innovation when he began his research twenty years ago. As a result, he proposed hedonism as a new layer of understanding, integrating factors other than job completion, such as subjective appeal, aesthetics, and novelty (Hassenzahl, Platz, Burmester, & Lehner, 2000). Hassenzahl (2001) emphasized the importance of such elements for overall system attractiveness. Later, Kujala, Roto, Väänänen-Vainio-Mattila, & Sinnelä (2011) presented a user experience (UX) framework as an appropriate long-term analysis method (Kujala, Roto, Väänänen-Vainio-Mattila, & Sinnelä, 2011). Merun and Umer (2016) also investigated how hedonic and pragmatic aspects influence consumers by using the UX model to investigate how the various factors interact and relate.

Another common way to think about the two opposing dynamics is to label them as usability vs user experience goals (Preece, Rogers, & Sharp, 2015). Hinderks, Schrepp, & Thomaschewski, 2018; Schrepp, Hinderks, & Thomaschewski, 2017; Merun & Umer, 2016; Rauschenberger, Schrepp, Cota, Olschner, & Thomaschewski, 2013). According to Karapanos, Hassenzahl, and Marten (2008), when users make product goodness judgments, pragmatic features of the user experience (i.e. utility and usability) appear to be dominant only for the preliminary experiences with a product; thus, the importance of hedonic aspects (especially what an item expresses about its owner) grows over time. A technique is required to demonstrate how user experience changes over time and to highlight the different important conflicting forces involved, in addition to disclosing hedonic difficulties. Pragmatic difficulties are connected to requirements, and if a product fails to fulfil pragmatic quality standards, its appeal will decline over time. Kujala, Roto, Väänänen-Vainio-Mattila, and Sinnelä (2011) found that the majority of concerns impacting long-term user experience are connected to hedonic qualities, which include issues associated with pleasure, such as beauty. According to Boy (2017), when it comes to user experience, a subjective approach is required since persons who use technology may acquire a wide range of

viewpoints or approach their goals in a variety of ways. Furthermore, both gender and age play a role in varying viewpoints (Hinderks, Schrepp, & Thomaschewski, 2018).

3. METHODOLOGY

To acquire insights into students' perspectives and evaluate SIS usability difficulties, qualitative and quantitative methodologies were utilized. A total of 307 students from PAAET's College of Business Studies took part in the survey. Statistical analysis was carried out based on the data collected.

3.1. Sample of the Study

A total of 307 students from the College of Business participated in the research. Table 1 shows how the study sample was distributed based on the gender of the pupils.

Table 1: Sample Demographics

		No.	%
Gender	Male	80	26.1
	Female	227	73.9

3.2. Evaluation Tool and Procedures

A survey was used to examine the focus group in this study. This approach combined both quantitative and qualitative methodologies. The Goal Question Metric (GQM) was used to create the questionnaire statements for the focus group survey. This is a well-known top-down approach to assessing software metrics in the context of objectives (Basili, Caldiera, & Rombach, 1994), with the objectives stated in terms of pragmatic and hedonic usability aspects. The User Experience Questionnaire (UEQ) was also included to connect the questionnaire with responding to questions about gender differences (Laugwitz, Held, & Schrepp, 2008).

The content of the questionnaire was modified to fit the needs of PAAET students. In doing so, succinct sentences were preferred for expressing the logic, with terms that would cause respondents to be unclear about the intended meaning being avoided. PAAET students are more inclined to challenge information in this way, according to the focus research. The preliminary focus group included 20 students (10 men and 10 females), allowing researchers to examine their procedures and survey terms before subsequently improving the survey for a bigger rollout. The 16 questions for the final questionnaire were revised as a consequence of this procedure.

The final form of the questionnaire has three components. The first section aimed to collect demographic information about students, such as their gender and academic institution. Sections 2 and 3 gathered information to reflect pragmatic and hedonistic habits, respectively. A five-point Likert-type scale was used to achieve clarity of response as follows: 1 indicates Strongly Disagree, 2 indicates Disagree, 3 indicates Neutral, 4 indicates Agree, and 5 indicates Strongly Agree. Following the editing of the questionnaire content to effectively capture the PAAET students' attitudes toward and opinions of SIS, a focus group was recruited to test the material's efficacy and improve the questions where concerns were discovered. The questionnaire's applicability was determined by identifying the linkages between each topic and the representative scores received from the 20 participants. The correlation coefficients were then calculated using SPSS. This demonstrates strong relationships between various aspects and the total score (p 0.01), which ranges from 0.806 to 0.903, indicating great internal consistency and structural integrity.

Similarly, the questionnaire's applicability was assessed using SPSS to determine Cronbach's alpha. As a result, the questionnaire has a high level of reliability, with co-efficient degrees and an overall Cronbach's alpha reading of 0.92. As a consequence, the questionnaire content can be judged to be relevant to the research population and provide useful insights.

4. RESULTS

This section presents the findings through the lens of the students' impressions of student information systems (SIS), with an emphasis on usability and user experience. Table 2 contains 14 usability-related items, seven of which show pragmatic quality and seven of which measure hedonic quality. Table 2 displays students' opinions of the SIS in terms of functionality, aesthetics, efficiency, simplicity of use, safety, speed, and innovation, as well as item rankings based on the mean value.

We must concentrate on the first three questions with the highest mean, followed by the last three questions with the lowest mean, as shown in Table 2. We can see from the mean values that the question "Displaying graphical components on my academic status is valuable" was ranked #1. (4.16). Furthermore, the query "The need for a clear description of how to utilize the Student Information System" was ranked second, with a mean score of 66. (4.11). Additionally, the question "Is the Student Information System (SIS) system secure?" came in third place with a mean score of 80%. (4.08). The question "The Student Information System (SIS) is an innovative system" was rated 12 with a mean of 3.37, while the question "The Student Information System (SIS) interface is beautiful" was ranked 12 with a mean of 3.37 "With a mean of 13, placed 13th before last (3.12). The question "All system orders are implemented swiftly (GPA calculation, study plan, etc.)" is ranked last with the lowest mean (3.02).

Overall, the students were satisfied with SIS, as evidenced by the mean values for each item. The findings show that the majority of students feel the SIS is an excellent tool for assisting students in creating study plans. The system also improves their retention rates by providing a clear path to their goal, allowing students to register for courses, check their academic progress status, see a clear picture of their academic timeline, and access a user-friendly, attractive, and interactive online service. As such, despite their positive opinions, some students think that course registration cannot always be done online and that visiting the registration office to resolve some registration concerns is necessary. Additionally, the findings point to the need for improved communication between students and technical support and assistance. Training sessions and online lessons on how to utilize the system efficiently are required. Furthermore, the finding indicates that more appealing displays should be used to improve the look and feel of the SIS.

Table 2. Students' perceptions of SIS

No.	Questions	Quality	Mean	SD	Rank
Q1	Displaying graphical elements on my academic status is valuable	*Hedonic*	4.16	0.923	1
Q2	It is necessary to have a clear explanation of how to use the SIS	*Pragmatic*	4.11	1.031	2
Q3	The Student Information System (SIS) system is secured	*Pragmatic*	4.08	0.997	3
Q4	The SIS is an easy-to-use program	*Pragmatic*	3.71	1.156	4
Q5	The commands and links on the SIS are clear and understandable	*Hedonic*	3.66	1.077	5
Q6	The SIS is reliable	*Pragmatic*	3.59	1.167	6
Q7	Student Information System) screen is exciting	*Hedonic*	3.55	1.057	7
Q8	I think the SIS is practical and effective	*Pragmatic*	3.55	1.117	8
Q9	The SIS is a creative system	*Hedonic*	3.47	1.208	9
Q10	The SIS is stimulating	*Hedonic*	3.44	1.117	10
Q11	The SIS meets my expectations	*Pragmatic*	3.42	1.181	11
Q12	The SIS is an innovative system	*Hedonic*	3.37	1.212	12
Q13	The SIS interface is attractive	*Hedonic*	3.12	1.157	13
Q14	SIS commands are executed quickly (GPA, study plan, etc.)	*Pragmatic*	3.02	1.356	14

4.1. Pragmatic Vs Hedonic Quality of the SIS

The two criteria of usability quality are pragmatic (Table 3) and hedonic (Table 4). (Table 4). The capacity of the user interface to enable the completion of possible tasks is known as pragmatic quality. Hedonic quality is a non-task-oriented quality in which the user interface is attractive, intriguing, and engaging to help the objective be achieved (Hassenzahl, 2008).

Table 3. Students' perceptions of SIS (Pragmatic Quality)

Questions	Quality	Mean	SD	Rank
Q2	*Pragmatic*	4.11	1.031	1
Q3	*Pragmatic*	4.08	0.997	2
Q4	*Pragmatic*	3.71	1.156	3
Q6	*Pragmatic*	3.59	1.167	4
Q8	*Pragmatic*	3.55	1.117	5
Q11	*Pragmatic*	3.42	1.181	6
Q14	*Pragmatic*	3.02	1.356	7
Average Mean		*3.64*		

Table 4. Students' perceptions of SIS (Hedonic Quality)

Questions	Quality	Mean	SD	Rank
Q1	*Hedonic*	4.16	0.923	1
Q5	*Hedonic*	3.66	1.077	2
Q7	*Hedonic*	3.55	1.057	3
Q9	*Hedonic*	3.47	1.208	4
Q10	*Hedonic*	3.44	1.117	5
Q12	*Hedonic*	3.37	1.212	6
Q13	*Hedonic*	3.12	1.157	7
Average Mean		*3.54*		

Tables 2, 3, and 4 provide an overview of students' impressions of the SIS on both pragmatic and hedonic levels. Respondents believe that the SIS aids in achieving the aim of allowing students to register for classes and see their records with appropriate accuracy, security, and timeliness. Figure 1 shows that the pragmatic dimension m=3.64 is somewhat greater than the hedonic dimension m=3.54. The findings imply that the SIS should be upgraded to meet the demands of users and that the system should be infused with creative and appealing features as well as novel functionalities.
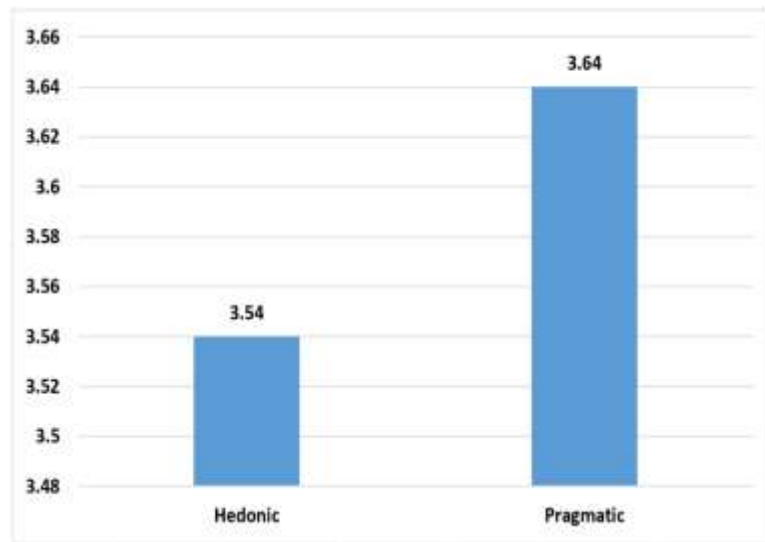

Figure 1. Pragmatic Vs Hedonic quality of the SIS

5. DISCUSSIONS

The findings imply that the SIS should be enhanced to meet the demands of users and that it should increase its efficacy, efficiency, simplicity of use, learnability, attractiveness, and originality. While efficiency is concerned with how quickly students can finish a job, effectiveness is concerned with whether students can accomplish their activities with a high degree of accuracy, eliminating data input mistakes and assisting them in performing their activities correctly (Quesenbery, 2020). Designers may help with these components of the SIS in a variety of ways. If developers want a system to be used frequently and comfortably, they should make it easy for users to understand the system so that it becomes second nature when they use it again. Designing SIS that fits a student's existing mental models is the greatest method to encourage ease of learning. Additionally, while delivering new features and functionality, designers must account for the simplicity of learning. Academic institutions should offer sufficient training and supervision for students to use and utilize systems' tools and functions (Al-Sharhan S., Al-Hunaiyyan, Alhajri, & Al-Huwail, 2020; Johnson, Jacovina, Russell, & Soto, 2016). Creating and distributing training resources in the form of films, online tutorials, and organized training events for students would, therefore, aid in the successful use of the SIS services.

Students' impressions of the SIS, both pragmatic and hedonic, were conveyed in the data reported in the previous sections. According to Lewis and Sauro (2020), pragmatic usability is concerned with the task-oriented aspect of an experience, whereas hedonic usability is concerned with the appeal, enjoyment, and uniqueness of the experience. Hedonic usability is a notion that has been around for roughly 20 years. Over the last two decades, the definition of hedonic usefulness has

grown to include a variety of structures. The findings of this study also indicate that the SIS's aesthetics be improved. Features that are both creative and appealing, as well as unique functionalities, must be infused. Designers must be creative to properly connect with people since creativity is a source of innovation. Designers of systems tackle issues, and the only way to do it successfully is to come up with novel solutions. Before the year 2000, Sauro (2013), who worked on the creation of products/systems for human use largely emphasized traditional usability, evaluating the extent to which designs resulted in effective and speedy job completion as well as high levels of satisfaction or perceived usability. Marc Hassenzahl believed that the notion of usability, while wide, overlooked the role of fun and enjoyment. He postulated a "hedonistic" quality that encompasses non-task-oriented characteristics, including inventiveness, uniqueness, and the subjective element of "appealingness" (Hassenzahl M., 2004).

McDaniel, Fanfarelli, and Lindgren (2017) argued that the use of creative approaches to delivering contemporary frameworks for software presentation and access could enhance the efficiency and utilization of these systems. Attractiveness is a hedonic characteristic that is defined as a pure valence aspect. According to Baharum et al. (2011) and He et al. (2014), attractiveness can improve users' comprehension and, hence, promote the system's learnability and operability. Users are also motivated by graphical representations that share visual information. Visual representations in the form of graphs or charts assist in swiftly comprehending facts, and the graphical presentation reinforces authority and clarity (MindTools.com, 2020). The favourable influence of aesthetics on users' subjective impressions and emotions is well-accepted in Human-Computer Interaction research. Aesthetic interfaces have been shown in several studies to improve performance (Miller, 2011; Thielsch, Haines, & Flacke, 2019; Van Schaik & Ling, 2008). Aesthetics should be considered from a practical perspective (Thielsch, Haines, & Flacke, 2019) because it has a positive impact on subjective impressions. As a result, designers should place a specific focus on the systems' appeal and aesthetics.

6. CONCLUSION

The goal of this study was to ascertain how students felt about a certain UX linked with the student information system that was in place. The research assessed the merits and limitations of the SIS's user interface (UX). It is anticipated that the findings of this study will be useful to usability researchers who wish to garner insights into how to create systems that are aligned with user needs and behaviours. User interfaces that are poorly designed, provide a negative user experience, or fail to fulfil availability expectations can cause a lot of aggravation. On the flip side, a good user experience may boost achievement and productivity.

The purpose of this research is to learn how to use the SIS system. This study was carried out at the Kuwait University of Science and Technology to analyze and comprehend students' thoughts and attitudes concerning SIS. Qualitative and quantitative approaches were used with a sample of students from the College of Business, one of the colleges of PAAET, a HE Institution in Kuwait. The outcomes of the study revealed that students have a relatively positive perception of the SIS, with most students affirming that it is beneficial because it allows them to keep track of their academic progress status, access a clear picture of their academic timeline, and use a user-friendly interface. The goal of this study is to point system developers in the right direction for future expansion opportunities that will improve SIS use. Such improvements should increase the efficacy and appeal of SIS while also improving how users engage with the different resources, considering both genders and broadening their comprehension of its connected capabilities (Morville, 2014). Academic institutions and higher education officials in Kuwait are expected to investigate the feasibility of implementing and improving such systems, with a focus on

enhancing communication between students and technical and administrative support, as well as offering a more aesthetically pleasing experience.

In terms of future work, it would be worth developing and deploying an intelligent SIS system that can deliver knowledge-based intelligent services that utilize adaptive feedback.

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