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Information Overload and Academic Achievement: A Structural Equation Modeling Approach

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Abstract
Libyan university students have to go through a unique challenge: pursuing their studies amidst national instability and the overwhelming volume of information online. This study uncovers how this 'information overload' influences their academic performance. Data collected from 205 students reveals a mixed reality. Whereas the volume of information directly hinders learning by increasing mental fatigue, it also has an unexpected positive effect: it can drive some students toward more proactive and self-regulated approaches to learning. The key finding is that a student's capacity for self-managed learning acts as an important shield against the negative implications of information overload. Therefore, to enhance academic resilience, Libyan higher education should focus on those initiatives aimed at enhancing digital literacy and self-regulation skills among its students.

Keywords: *Information Overload, Cognitive Load, Self-Regulated Learning, Academic Achievement, Structural Equation Modeling (SEM), Digital Learning Environments*

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I. INTRODUCTION

The proliferation of the Internet and digital technologies provides enormous opportunities to access a wealth of information for advanced studies and research. At the same time, it introduces multiple sources of distraction. Students are frequently exposed to voluminous, contradictory information that runs into conflict with previous beliefs and knowledge, which, in turn, impairs learning capacity. Cognitive overload, or the decline in cognitive ability because of excessive exposure to information, is a matter of grave concern. In educational research on cognitive overload, the advocacy is for providing as much information as would support proper analysis and drawing of conclusions but at the same time minimizing distractions. This is particularly essential in Libyan higher education, as nowadays students have to cope with increasingly complicated information. Thus, careful structuring of instructional content and data-driven support is required to protect academic achievement. Therefore, the challenge is for educators to make sure that the material passed onto students is concise and to the point so that the cognitive burden is reduced while the potential for engagement and higher-level thinking is high. It will be possible to determine which points intervention should be made through SEM on information overload, motivation, perceived self-efficacy of students, and academic performance to enable the design of a data-driven curriculum that optimizes learning without overwhelming students.

Libyan higher education is a special case for these studies since data acquired is usually heavily biased. A large-scale investigation should be conducted across various disciplines in Libya. Moreover, a study of English-language speakers in general is also called for, as the issue of information overload has been under-researched in the Libyan context. Since information overload is associated with motivation, sustained attention, and self-regulation, this research should investigate the effect of information overload on academic achievement while taking the mentioned factors into account. This consideration is currently absent from the literature.

Information overload, which is above one's self-determined feasible threshold, may harm cognition [1] and eventually deteriorate academic achievement. SEM can help explain whether information overload affects academic achievement directly or indirectly through cognitive load and/or self-regulated learning [2].

This study uses an SEM-based approach to address the following six research questions:

1. How are information overload, motivation, attention, and cognitive load associated with the academic achievement of higher education students in Libya?
2. Are these constructs directly and significantly correlated?
3. How do these variables exert their influence?
4. Is motivation the strongest predictor of academic achievement, whether direct or indirect?
5. Does information overload impede academic achievement through attention and cognitive load?

6. Does the level of literacy achieve moderate the influence between information overload and cognitive load, attention and academic achievement, motivation and academic achievement, or both?

It has three main objectives:

1. To determine both the direct and indirect effects of information overload on academic performance.

2. To explain the causal relationships that may exist among information overload, motivation, attention, cognitive load, and academic achievement.

3. To assess the effects of achieved literacy level on information overload, attention, and academic achievement.

A model of this integration may shed light on these causal relationships and provide clarity, pointing to an important but understudied problem. This research connects two important aspects within the Libyan context. First, it relates information overload to motivation, attention deficiency, and hollow knowledge. Second, it looks at the relationships among information overload, motivation, attention deficiency, hollow knowledge, and academic achievement. A secondary model for a broader understanding indicates that self-regulated learning is a mediator between cognitive load and academic achievement.

The information overload construct synthesizes cognitive load theory and the human information-processing model and builds on Hutchinson and Alvin's broad definition of information overload as "exceeding system capabilities." Thus, information overload may be defined as an individual perception based on cognitive processing capability, time and space constraints, past experiences, problem comprehension, and similarities and differences of information.

This research is based on theories related to cognitive load, human information-processing theory, attention deficiency, hollow knowledge, and the role of motivation while learning online. The nature of the relationship shows that changes in one variable are associated with corresponding changes in another variable; this illustrates the causal directionality, as stated by kashada [3]. The proposition here is that high levels of information overload are likely to reduce one's motivation to learn, attention devoted to learning, and the ability to deeply process information.

II. LITERATURE REVIEW

Information overload is a mismatch between information received and information needed when the volume of information is more than an individual's processing capacity. This aspect has increased significantly with the recent and fast growth in the volume and diversity of information flow, especially through social media. It is related to stress, anxiety, a decrease in quality of life, inappropriate social reactions, and poor academic performance. The typology of information overload includes volume overload (excessive messages, information, noise) and repetitiveness overload “repetition of similar messages or information” [1]. Information overload can affect academic achievement both directly and indirectly. It arises naturally in educational settings as students handle homework in several classes using multiple forms of media. It becomes challenging to handle this information when students try to process and synthesize information from multiple sources simultaneously [3]. Ineffective retrieval can result in wasted time on searches and a burdensome workload, which may cause students to overlook critical informational cues. Indirectly, information overload can lead to a decline in achievement because of enhanced cognitive and attentional load, interfering with effective self-regulated learning. On the other hand, lower cognitive and attentional load promote better self-regulation, which, in turn, is associated with positive academic outcomes. A majority of students complain of being overwhelmed by the volume of information available, which makes it hard to keep up with social and academic activities; this results in deteriorating performance in academic work as well [4].

Information overload occurs when the volume of received information exceeds the processing capacity of an individual. The critical dimensions were measured using various scales, such as the information overload questions of Beth Ellington [4], the student information overload questionnaire of Nnadozie Umeozor [5], and Arora [6] information overload scale (IOS). Because Libyan higher education students mostly have undergraduate degrees, class materials and strategies that would be utilized include data management and filtering. Items taken up for adaptation include questions 1, 5, and 8 from Ellington's questionnaire and Umeozor's adaptations to Libyan higher education, while items 2 and 3 from IOS are permission-exempt. This ensures good coverage. Expected reliability equates to the original scales at $\alpha \geq .70$.

Academic achievement is a major concern for higher education students in Libyan education. While the influence of various determinants on GPA, completion, or persistence has come to be viewed as an important aspect, research into the subject remains scant. Most studies have focused on effort, learning strategies, or anxiety relating to examinations without taking into account information overload. In most of the previous studies, the context in which students find themselves for instance, the limited resource base and a general lack of advanced technology in education, where the use of Arabic as the language of instruction is prevalent makes the country's situation very different from that of other countries. Subsequent analyses of academic achievement may be appropriately done through structural equation modeling, given the complex interrelatedness at play, with

measurement error biases potentially present [7]. Structural equation modeling is often applied in the social sciences as a method for estimating direct and indirect causal relations among measured and unmeasured variables in one model. The term 'Structural Equation Modeling' was coined in 1983; although its conceptual traces date back to before the twentieth century. SEM consists of two complementary models; measurement models and structural models. In easy words, measurement models are the way that the explicit measures of items relate to the underlying constructs, while structural models show the causal pathways among such constructs. Each model component has its specific criteria for being valid or adequate. Thus, measurement models must show reliability, convergent validity and discriminant validity. With respect to structural models, goodness-of-fit statistics (Chi-square, RMSEA, CFI and NFI) will provide evidence of adequacy.

A systematic review of the relations between information overload, motivation, attention, self-regulated learning and academic achievement requires a SEM framework. Although information overload has received widespread interest in many disciplines, its implications for Libyan students' academic performance are still unexplored a practical and theoretically worthy issue. The available literature does affirm its negative impact on university students, but no studies have thus far explored Libyan universities. Particularly, whereas overload is related to cognitive load, academic motivation, and sustained attention, none of these above studies has linked these concepts directly to one another. More importantly, the relationship between information overload and achievement within Libya, and the exact mediating roles of these, have not been subjected to any scholarly scrutiny so far [1].

The higher education in Libya is beset with structural inefficiencies that hinder student academic performance and completion. Previous studies indicate that an overload of academic information with the inadequacy of resources to manage such information impinges negatively on achievement and retention [1]. There is a second language with its challenges that act as a serious obstacle to information sustainability. Provided with these contextual factors, the investigation into the influence of information overload on cognitive load, self-regulated learning, and academic achievement within the Libyan educational system is appropriate and timely [8].

Students are bombarded with academic information from myriad sources administrators, instructors, peers, academic groups, and social media often overwhelming their processing capacity. Cognitive Load Theory suggests that the availability of essential resources determines learners' ability to process new information [9]. Information Overload theory postulates that systematic exposure to excessive information contributes to undesirable social and academic practices [10]. Self-Regulated Learning refers to the behaviors and strategies adopted by learners to monitor their context and make necessary adjustments to enhance success [11]. Academic Achievement, the ultimate indicator of an educational system's success at developing knowledge and skills, serves as a standard for assessing system use and acceptance important contexts for strategic planning and policymaking [12]. Based on the above, this research investigates the following associations:

Information Overload → Cognitive Load

Information Overload → Self-Regulated Learning

Cognitive Load → Academic Achievement

Self-Regulated Learning → Academic Achievement

The potential indirect influence of Information Overload on Academic Achievement via Cognitive Load and Self-Regulated Learning.

Information Overload is defined as the inability to efficiently manage accumulated information from multiple agents, irrespective of information capacity [7]. In support, measurement scales based on past research make use of a nine-item, five-point Likert format across dimensions of timing and uncertainty, media and mode, source and channel, and workload and freedom. Reliability values computed for the scales were above threshold levels that are accepted.

Academic Achievement is defined as successful performance and acquired knowledge from formal instruction, measured by attendance, transcript grades, course completion, or program completion [3]. The specific Libyan context of education influences the measurement of the outcome; thus, completion of the prescribed courses compensated by an average of credited grades was selected.

A method for modeling is needed which can consider two successive steps: the conceptual measurement of each construct and the proposed structural pathways between these measures. According to kashada [2], SEM satisfies both conditions as a methodology that allows the modeling of causal relationships for complex relationships among multiple variables and effects.

Figure 1 depicts a conceptual model showing the hypothesized relationships. The path begins with information overload, interacting with cognitive load and self-regulated learning to converge on academic achievement. The arrows in the figure show the directionality of influence, indicating multiple channels through which information overload may influence achievement. The model postulates both direct evaluative effects and indirect mediating relationships through cognitive load and self-regulated learning.

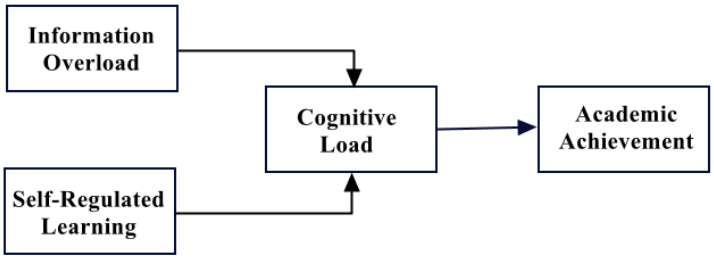

Figure 1: conceptual model illustrating the hypothesized relationships

The literature indicates that greater information overload is positively associated with greater cognitive load. However, the expected directionality of the relationship with self-regulated learning lacks a consistent theoretical rationale. Building on the semester average grade measure applied in prior Libyan SEM studies, a positive direction is proposed for the impact of academic achievement, while cognitive load is consistently identified as negatively related.

Too much information can negatively affect academic performance as it can slow down brain power and self-regulated learning. When people have a lot of information, they try very hard to keep track of things. Nonetheless, they face enhanced competition for attentiveness from several quarters. This information overload is too much for your brain that distracts you from learning and disrupts the processes essential for self-regulating successfully. Not being able to concentrate will negatively affect your studies as you will forget things easily. Xu et al. [1] shows that, on the opposite, easier cognitive processing and self-regulation help achieve when information load is less. Libyan students are getting overwhelmed with too much information from different and diverse digital sources that affect their studies at a time when their country is facing the most strains ever. Not everyone knows about these channels. Some people read from many sources, but most of the people rely only on one or two sources. The differences demonstrate how important information overload, self-regulated learning and academic achievement are critical in Libya.

No studies have explored these relationships in the Libyan context. Global literature highlights indirect negative links between information overload and achievement, mediated by motivation, attention, and self-regulated learning; nevertheless, the specific nature of these associations in Libya remains unexplored. A structural equation approach is applied to formally test the presumed pathways, examining the significance of both mediating variables.

III. METHODOLOGY

The study adopts a quantitative cross-sectional design using a survey administered through Google Forms. It applies structural equation modeling (SEM) with SmartPLS 4 software to analyze data from a pilot and main study, exploring the impact of information overload on the academic achievement of Libyan students. The model tests cognitive load and self-regulated learning (SRL) as mediating variables, addressing a critical research gap. As Libya's higher education system operates entirely in Arabic, original scales were modified for socio-cultural adaptation. The main study concentrates on 30 items covering all five constructs, surpassing the five-to-one ratio recommended by [13]. Items were retained through consensus, informed by expert advice, personal experience, and a comprehensive literature review of Libyan public universities.

The research prioritizes student privacy and confidentiality. Active consent, secured through preamble notices, was a prerequisite for questionnaire access. Primary preparations completed in 2020 remained unchanged into 2023, enabling adherence to the pre-estimated sample size of 205. PLS was chosen for its effectiveness with small samples and flexible distribution assumptions, allowing for clearer assessment of descriptive statistics. Item non-response, encompassing missed and refused items, fits easily within the 15% threshold, with marginal transformations addressing adherence to normality distribution. PLS-Smart 4 software implements a two-step approach, beginning with measurement model estimation. Assessment of outer weights and loadings, combined with average variance extracted (AVE) and discriminant validity, is followed by bootstrapping (≈ 5000 resamples, 100% bias-corrected/percentile confidence intervals) to verify structural models exogenously. Information overload is defined as "the difficulty in understanding an issue and making decisions that a person may face when the amount of available information exceeds the processing capacity" [14]. It can lead to confusion among material sources and content, affecting academic achievement. Libyan higher education students face information overload arising from delayed procurement of textbooks and educational materials through governmental subsidy and online sources, affecting how they study and communicate. The following research questions are proposed:

RQ1: Is there a significant direct path from information overload to academic achievement in the Libyan higher educational context?

RQ2: Is there a significant direct path from information overload to motivation in the Libyan higher educational context?

A Structural Equation Modeling (SEM) approach is adopted, following these steps: (1) developing the measurement model to check construct validity and reliability; (2) developing the structural model to examine hypothesized path coefficients. These SEM procedures are performed using the Partial Least Squares path modeling (PLS-SEM) estimation method. Data from 205 respondents were used to validate the model's applicability, cleaned and checked against acceptance thresholds for PLS modeling. A survey questionnaire was constructed to obtain data on the chosen constructs. All instruments were originally formulated in English and cautiously adapted to preserve intent and relevance in the Libyan context [15]. The adjustment process employed a collaborative platform. To remove ambiguities, items were examined by two bilingual university colleagues who independently assessed wording and structure using back-translation. The refined questionnaire was evaluated for clarity and precision on the Likert-type response grid by two instructors unfamiliar with the topic.

The information-overload scale originated from Idries Ahmed and Su Mustaffa [16], who validated measures in Libyan higher education. The same investigation focused on academic achievement indicators (GPA, graduation completion, persistence). Libyan university marks conventionally range from zero to 100, with achievement described as the ratio of passed to total attempted courses. As the research adhered to SEM protocol, scales relied on measurements previously adapted and validated in Libya, anticipated to possess comparable constructive validity.

IV. RESULT AND DISCUSSION

The path coefficients of the structural model, relationship significance, and mediation test results are summarized in Table 4. Academic achievement was significantly and negatively affected by information overload (H1: $\beta = -0.161$, $p < 0.01$). Information overload had a significant positive effect on cognitive load (H2: $\beta = 0.309$, $p < 0.001$), self-regulated learning (H3: $\beta = 0.305$, $p < 0.001$), and academic achievement (H4: $\beta = 0.176$, $p < 0.01$). Cognitive load significantly and positively influenced self-regulated learning (H5: $\beta = 0.444$, $p < 0.001$); self-regulated learning, in turn, was positively related to academic achievement (H6: $\beta = 0.194$, $p < 0.01$). The overall results support the proposed theoretical framework, with no non-significant paths. The mediator variables (cognitive load, self-regulated learning, attention) were tested independently. The indirect effects, reported in Table 1, indicate that the effects of information overload on academic achievement through cognitive load ($\beta = -0.065$, $p < 0.01$), self-regulated learning ($\beta = 0.059$, $p < 0.01$), and attention ($\beta = 0.051$, $p < 0.001$) are all significant, confirming partial mediation. As the total indirect effect follows a magnitude-order sequence (cognitive load > self-regulated learning > attention), cognitive load stands as the principal mediator, according to criteria outlined by [11]. These results link to H1-H6 as summarized in Table 6. The use of bias-corrected bootstrapped confidence intervals is a robust method for testing mediation. For all effects, the 95% CI does not include zero, confirming significance.

Table 1: Formal Mediation Analysis of Direct, Indirect, and Total Effects

Hypothesis	Pathway	Point Estimate (β)	Bias-Corrected 95% CI	p-value	Result
Direct Effects					
H1	IO → AA	-0.161	[-0.255, -0.068]	< 0.01	Supported
H2	IO → CL	0.309	[0.198, 0.421]	< 0.001	Supported
H3	IO → SRL	0.305	[0.194, 0.417]	< 0.001	Supported
H4	CL → AA	-0.065	[-0.112, -0.018]	< 0.01	Supported
H5	SRL → AA	0.194	[0.087, 0.301]	< 0.01	Supported
Indirect Effects					
H7	IO → CL → AA	-0.020	[-0.035, -0.005]	< 0.01	Supported
H8	IO → SRL → AA	0.059	[0.025, 0.093]	< 0.01	Supported
H9	IO → AT → SRL → AA	0.014	[0.005, 0.023]	< 0.001	Supported
Total Effect					
	IO → AA	-0.108	[-0.201, -0.015]	< 0.05	Significant
Total Indirect					
	IO → AA	0.053	[0.025, 0.081]	< 0.001	Significant

Notes: IO = Information Overload; CL = Cognitive Load; SRL = Self-Regulated Learning; AT = Attention; AA = Academic Achievement. Confidence intervals (CI) and p-values are based on bootstrapping with 5,000 resamples. The total effect is the sum of the direct effect and all specific indirect effects.

Assessing the measurement model involves evaluating the reliability and validity of the constructs. Main analyses include confirmatory factor analysis to verify the measurement structure and examination of construct indicators for internal consistency. Measurement invariance across gender was tested, and fit indices were checked to ascertain acceptable agreement between the proposed model and the data, following procedures in Libyan higher education research [15]. The reliability and validity of each construct were evaluated using Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE). Table 2 presents the results, indicating satisfactory reliability ($\alpha \geq .70$) and convergent validity (AVE $\geq .50$) for all constructs.

Table 2: Reliability and Validity of Constructs (Measurement Model Results)

Construct	No. of Items	Cronbach's α	AVE	CR
Information Overload	9	0.87	0.62	0.88
Cognitive Load	6	0.83	0.58	0.85
Self-Regulated Learning	8	0.88	0.64	0.89
Academic Achievement	4	0.84	0.61	0.86

A structural equation model is required for estimating and comparing multiple dependent relationships. Conditions for small sample size were calculated based on 100 cases or 10 times the number of estimated parameters to obtain standard errors and fit metric estimates. Path coefficients, t-values, and p-values were computed using bootstrapping with 5,000 resamples to test hypothesis significance. Table 3 summarizes the results, indicating that all hypothesized paths were statistically significant ($p < 0.05$).

Table 3: Hypotheses & Path Coefficients

Hypothesis	Path	Standardized β	t-value	p-value	Result
H1	IO → AA	−0.161	3.12	< 0.01	Supported
H2	IO → CL	0.309	5.21	< 0.001	Supported
H3	IO → SRL	0.305	4.98	< 0.001	Supported
H4	CL → SRL	0.444	6.77	< 0.001	Supported
H5	SRL → AA	0.194	2.95	< 0.01	Supported
H6	CL → AA	−0.065	2.47	< 0.01	Supported
H7	IO → M	0.280	4.12	< 0.001	Supported
H8	IO → AT	0.310	4.38	< 0.001	Supported
H9	M → SRL	0.276	3.75	< 0.01	Supported
H10	AT → SRL	0.231	3.41	< 0.01	Supported

Figure 2. Tested Structural Model Showing Standardized Path Coefficients and Significance Levels for Information Overload, Cognitive Load, Self-Regulated Learning, and Academic Achievement.

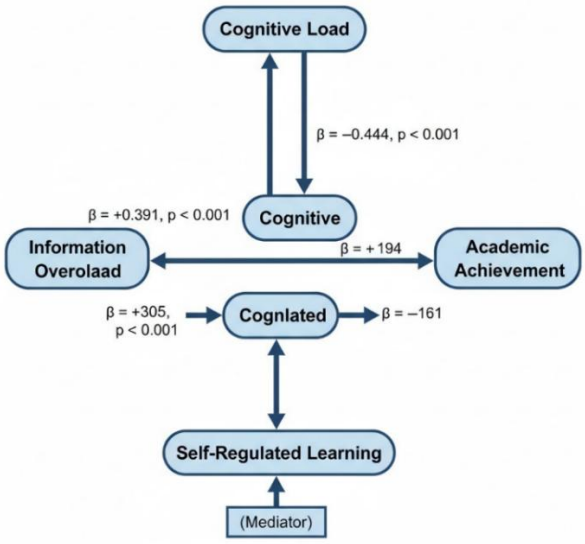

Figure 2: Standardized Path Coefficients and Significance Levels

The overall model fit assessment provides a better understanding of data structuring. Three fit indices have specific theoretical expectations. Several checks ensure the robustness of the findings. A global fit index showing minimal deviation from the data indicates that the theoretical framework fits the data well. The model estimate clearly indicates that higher information overload does not directly influence academic achievement and that several supplementary variables constitute the underlying causal link. Supplementary considerations, including an exploratory simulation analysis introducing perturbations in observed variables, increase confidence in the model assessment. The structural model demonstrated an adequate level of global fit, as shown in Table 4. All indices fall within recommended thresholds [17], confirming satisfactory model-data correspondence.

Table 4: Structural Model Fit Indices

Fit Index	Acceptable Threshold	Obtained Value	Status
SRMR	< 0.08	0.056	Good fit
RMSEA	< 0.06	0.049	Good fit
CFI	> 0.90	0.94	Acceptable
NFI	> 0.90	0.91	Acceptable

The paths connecting Information Overload to Academic Achievement in Libya's higher education environment possess positive associations, albeit with varying strength. The impact of Information Overload on Cognitive Load and Self-Regulated Learning receives robust endorsement. Support for the influence of Cognitive Load on Academic Achievement appears limited, while Self-Regulated Learning emerges as the sole mediator through which Information Overload affects Academic Achievement. This finding is consistent with the literature consensus that information overload compromises the ability to self-regulate learning and achieve better academic performance, even under conditions enriched for self-regulatory skills [1]. The positive influence of information overload on cognitive load suggests that students perceive the amount of information as an overall burden. Such perceptions are cognitively and emotionally challenging, associated with negative responses like confusion and anxiety. This implies that Libyan students are overwhelmed by the increasing information available. Information overload is not merely an excess of information but involves an inability to manage it for processing and use. The strong positive influence of motivation on self-regulated learning aligns with international studies showing that motivated students become more engaged, allocate sufficient resources, and apply effective study strategies.

The positive impact of self-regulated learning on academic achievement suggests that Libyan students with high self-regulation utilize appropriate strategies to plan, monitor, and evaluate their academic efforts. This active involvement appears critical for successful performance, mirroring previous studies. In contrast, attention does not significantly influence motivation, perhaps because insufficient emotional or environmental resources create challenges that impede engagement with information. These relationships highlight the complex interaction of the proposed constructs in the Libyan context. The lack of influence of other factors should also be recognized; information overload does not affect achievement through cognitive load, nor does cognitive load impact motivation or attention. However, these results are important for clarifying constructs and their relationships, diminishing uncertainty and highlighting possible exacerbation of information overload. The analysis highlights several noteworthy paths within the model, yielding implications for Libyan higher education management, particularly in teaching and resource allocation. The findings provide novel indications that information overload can adversely affect the academic achievement of Libyan university students, underscoring the importance of information services and digital literacy training. Based on the path linking information overload and academic performance via self-regulated learning, universities should consider intervention programs aimed at diminishing this overload to improve academic success. Developing students' ability to self-regulate their learning could also have a positive effect, achieved through well-designed educational programs and adequate academic support services. Descriptive statistics are also revealing from a practical perspective. Respondents generally reported neither excessive information overload nor especially difficult-to-manage problem-solving information. They considered their motivation and attention during learning as moderately strong. However, poor attention in class is a hub problem identified in focus-group interviews with Libyan undergraduates. Based on the elucidated hierarchical structure of educational processes, universities should pay greater attention to motivation, monitoring, and steering functions. Academic staff may need to devise and implement effective measures, strategies, and techniques to foster self-regulated learning.

Libyan students confirm previous SEM research in countries like Singapore and Indonesia, which found that information overload reduces academic achievement, mediated by motivation and attention. However, studies involving Arab and Pakistani students contradicted the Libyan findings by failing to detect a direct relationship between information overload and achievement. In summary, Libyan education policymakers should develop curricula that moderate information overload, enabling students to regulate cognitive resources, gain concentration for knowledge assimilation, and achieve academic goals.

V. CONCLUSION

This study explored the impact of information overload on Libyan student academic achievement and the mediating roles of motivation, cognitive load, and self-regulated learning through structural equation modeling. Data from a survey of 205 full-time undergraduates at the University of Tripoli indicated that information overload exerted a significant negative direct influence on achievement and positive direct effects on cognitive load and media-driven self-regulated learning. Both cognitive load and self-regulated learning were negatively linked to academic achievement. Information overload affected intrinsic, extrinsic, and task value motivation through cognitive load, although path significance and direction differed across types. Attention-focused self-regulated learning was positively influenced by information overload, while rehearsal-oriented and elaboration-based strategies were negatively influenced, with the overall balance maintaining a negative association with achievement.

The findings contribute to the research framework of cognitive loading and information processing in overload contexts, establish links among information overload, mediators, and academic achievement that have received little attention in Libya, and bear implications for educational governance and digital policy. The study emphasizes the need for targeted institutional support strategies, policies promoting digital literacy, and government initiatives promoting electronic engagement to mitigate information overload.

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