

# Workload Management and Knowledge Retention Among BSCS Students at Surigao del Norte State University: A Quantitative Study

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**Abstract:** *Due to high academic demand in the computer science program, many are worried whether BSCS students at Surigao del Norte State University (SNSU) can retain their knowledge amidst academic pressure like activities, projects, assignments, and subjects. This study aimed to identify the relationship between workload management and knowledge retention among 61 BSCS students in different year level at SNSU. The proponents used quantitative descriptive-correlational research design to explore and collect needed data for the study. In collecting data, the main instrument used was survey questionnaire, it is published through Google Form to be able to share online and collect responses from the participants allowing the proponents to be able to gather data that are interpreted using statistical tools such as frequency count, percentage, weighted mean, and Pearson r. Results revealed that despite experiencing workload or academic pressure, BSCS students are able to perform a high level of knowledge retention ( $r=0.98$ ,  $p<0.01$ ). These results suggested that BSCS students demonstrated academic resilience that shows an appreciation for effective workload management strategies. In conclusion, the study revealed that workload management with the right strategies showed strong positive connection with retaining the knowledge among BSCS students at SNSU. This suggested that BSCS students who can manage workload or academic pressure well are able to retain their knowledge better. It is recommended to provide strategies in managing workload to support student academic learning outcomes.*

**Keywords:** Workload Management, Knowledge Retention, BSCS Students, Quantitative Study, Academic Resilience

## I. INTRODUCTION

Retaining knowledge amid academic workloads is one of the constant concerns of students, not just for BSCS students but for students in general, in recent years. Many BSCS students face multiple classes, deadlines for activities, projects, or assignments. This often leads many students to have low learning efficiency, they find it difficult to recall what they have studied because of the number of tasks they have, according to cognitive load theory. At Surigao del Norte State University, BSCS students face heavy academic workloads every semester which raises the concern whether they are still able to retain their knowledge despite academic workloads. With this concern, we found few studies that explores this relationship specifically among BSCS students in the local settings. Therefore, proponents came up with this study that aimed to identify the relationship between workload management and knowledge retention among BSCS students at SNSU.



## **II. REVIEW OF RELATED LITERATURE**

### **Theoretical Bases of the Study**

The theoretical basis for this study was cognitive load theory, which explained the importance of how managing workloads affects retaining knowledge. It also explained how limited the capacity of the brain can process information at once, how too much workload overwhelmed student cognitive load and understanding, this is according to Sweller [1]. Because of this theory, the proponents believed that managing workloads effectively plays an important role in BSCS students' knowledge retention.

Another theory that supported this study was the Working Memory Model by Baddeley and Hitch [2] which also referred to as limited memory capacity. It is said that working memory can only hold limited information at a time, this implies that when students are assigned with multiple tasks, they are overloaded which caused them delays. This theory supported the idea that BSCS students with excessive workloads may struggle to understand, process, and retain their knowledge.

In addition to this, Self-Regulated Learning Theory by Zimmerman [3] also supported this study, it is said that students who are self-regulated in their learning process by managing their time, setting goals, and monitoring their own learning progress help them manage heavy workloads which supports their ability to retain knowledge.

Lastly, the study of the Time Management by Britton and Tesser [4] also supported this study, which focuses on the effect of time management on academic performance, it is said that students who properly manage their time and prioritize their tasks, they are the students who have a higher chance of having time to study other subjects and can enhance their knowledge retention.

### **Knowledge Retention Aspects**

One of the aspects of knowledge retention is recall which refers to the student's ability to remember or retrieve information they have studied or read. According to the Testing Effect of Roediger and Karpicke [5], in order to further enhance students' long-term memory, it needs to go through regular testing such as active retrieval of information. In this study, recall was measured by how well BSCS students were able to remember information despite facing heavy academic workloads.

Another aspect of knowledge retention is comprehension. It is the ability of students to understand what they have studied or read. According to Mayer [6], learning in a meaningful way is more effective than rote memorization. It is said that students who understand questions with 'what' and 'how' remember their lessons better. In this study, comprehension was measured by how well BSCS students were able to understand their lessons despite facing heavy academic workloads.

Lastly, the third aspect of knowledge retention is application which refers to the ability of students to use and apply what they have learned in real-life situations. According to Biggs [7], it is important for students to deepen their understanding of what they are studying so that they can easily apply it in any situation rather than just memorization, which is easily forgotten. In this study, application was measured by how well BSCS students were able to use and apply what they have learned when facing heavy academic workloads.

### **Components of Workload Management**

Discipline is a key component of workload management which refers to the ability of students to control themselves while maintaining their studies despite heavy academic workloads. According to Baumeister et al. [8], when students are overwhelmed with academic workloads, they lose discipline, making it difficult for them to maintain their studies, while students with strong self-control are able to maintain their study habits because they can avoid distractions. In this study, the discipline of BSCS students was measured through the way they maintain their study habits and avoid distractions amidst heavy academic workloads.

Prioritization is another component of workload management which refers to how students categorize tasks and determine which one should come first over non-academic or personal tasks. According to Covey [9], categorizing which tasks are urgent and important from those tasks that are not urgent and not important helps students avoid overthinking which task to address first and because of this, their academic performance improves. In this study, the



prioritization of BSCS students was measured through survey questions that assessed how they identify and label tasks based on how urgent and important they are.

Scheduling completes the three components of workload management which refers to the ability of students to manage their tasks by allocating time for when the tasks should be completed. According to Rohrer and Pashler [10], it is better to study little by little rather than cramming. According to them, students who space out during a study session, remember what they have studied better. In this study, scheduling of BSCS students was measured by how they allocate time to their tasks properly even though they still have multiple academic workloads lined up.

### III. CONCEPTUAL FRAMEWORK

This study revolves around the relationship between workload management and knowledge retention, specifically how BSCS students at SNSU manage tasks and maintain their knowledge despite heavy academic workloads. The independent variable of this study is Workload Management which contains three components. First is Discipline which refers to the students' self-control and maintaining their study habits. Second is Prioritization which refers to how students categorize their workloads based on how urgent and important they are. And lastly, Scheduling which refers to how they allocate time to manage their workloads. The dependent variable of this study is Knowledge Retention which contains three aspects. First is Application which refers to how students use their knowledge in real-life situations. Second is Comprehension, which refers to their understanding of what they have studied or read. Lastly is Recall, which refers to the information they can remember despite heavy academic workloads.

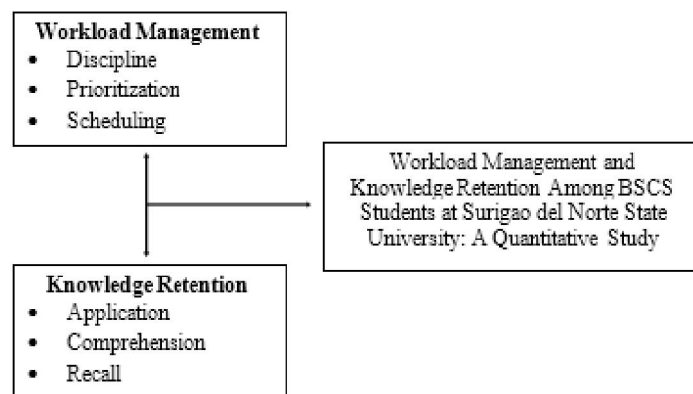


Figure 1: Conceptual Framework of the Study

Figure 1 shows the relationship between workload management and knowledge retention of BSCS students at SNSU. On upper left box represents the independent variable of this study, Workload Management (Discipline, Prioritization, and Scheduling), on lower left box represents the dependent variable of this study, Knowledge Retention (Application, Comprehension, and Recall), and an arrow that shows the connection of the independent and dependent variables that leads to the right box which shows the title or the result of the study. It illustrates that BSCS students who have self-discipline, know how to prioritize, and schedule tasks are able to retain their knowledge better.

### IV. RESEARCH METHODOLOGY

#### Research Design

This study used a quantitative descriptive-correlational research design to understand the relationship between Workload Management and Knowledge Retention of BSCS students at SNSU through a structured survey questionnaire to ensure that the proponents are not biased and no manipulation occurs. The descriptive aspect is for the proponents to describe the relationship of workload management and knowledge retention, while correlational aspect is to identify if there really is a connection between the two variables, if their relationship truly exists.



### Participants/Respondents

There were 61 BSCS students at SNSU who participated as respondents in this study about the relationship between workload management and knowledge retention. They were selected through random sampling. The demographic profile of the respondents is shown in Table I, which reveals that 59% of the participants are female and 41% are male, 41% of them are 19 years old, and majority of the respondents are 1st-year students (89%).

Table I. Respondents' Demographic Profile (n=61)

AGE	N	
18 Years Old	22	36%
19 Years Old	25	41%
20 Years Old	8	13%
21 Years Old	3	5%
22 Years Old	1	2%
23 Years Old	1	2%
24 Years Old	0	0%
25 Years Old	1	2%
YEAR LEVEL	N	
1st Year	54	89%
2nd Year	5	8%
3rd Year	1	2%
4th Year	1	2%
GENDER	N	
Female	36	59%
Male	25	41%

### Instrument and Procedure

In this study, a 27-item questionnaire, 9 items per variable, was created by the proponents through Google Forms using a Likert Scale (ranging from 1=Strongly Disagree to 4=Strongly Agree). Their answers were collected by sharing the link via Messenger and Facebook and by giving them the link during face-to-face interaction.

### Data Analysis

After the data were collected, they were processed using Jamovi, a descriptive statistical software, where the proponents analyzed the data through statistical tools such as frequency count, percentage, weighted mean, and Pearson r. After obtaining the results, they were interpreted using the following scale 3.26-4.00 as High, 2.51-3.25 as Moderate, and 1.00-2.50 as Low.

## V. RESULTS AND DISCUSSION

### Workload Management Level

Table II shows the level of workload management of BSCS students at SNSU. Among the three components, Prioritization had the highest mean score of 3.23, followed by Discipline at 3.22, and Scheduling at 3.19, with a total average mean of 3.21, which means that BSCS students practice workload management at a moderate level.

Table II: Level of Workload Management (N=61)

Components	Mean	Interpretation
Discipline	3.22	Moderate
Prioritization	3.23	Moderate
Scheduling	3.19	Moderate
Total	3.21	Moderate



### Knowledge Retention Level

Table III shows the level of knowledge retention of BSCS students at SNSU. Based on the results in terms of the aspects of knowledge retention, Discipline got 3.21 mean score (Application got 3.22, Comprehension got 3.20, and Recall got 3.20), Prioritization got 3.22 mean score (Application got 3.21, Comprehension got 3.23, and Recall got 3.23), and Scheduling got 3.19 mean score (Application got 3.22, Comprehension got 3.15, and Recall got 3.21), with a total average mean of 3.21, which means that the knowledge retention of BSCS students is at a moderate level.

Table III: Level of Knowledge Retention (N=61)

Components	Application	Comprehension	Recall	Mean	Interpretation
Discipline	3.22	3.20	3.20	3.21	Moderate
Prioritization	3.21	3.23	3.23	3.22	Moderate
Scheduling	3.22	3.15	3.21	3.19	Moderate
Overall Mean				3.21	Moderate

### Correlation Analysis

With the use of Pearson correlation analysis, results revealed that workload management and knowledge retention has a very strong positive relationship. Based on the results, application got  $r=0.98$ , comprehension got  $r=0.98$ , and recall got  $r=0.99$ , all with  $p<0.01$ . These results show that good and effective workload management practices provide a positive influence on students' knowledge retention.

### V. CONCLUSION

This study aimed to identify the relationship between workload management and knowledge retention among BSCS students at SNSU. Based on the results obtained from 61 BSCS students who participated in this study, both variables are at a moderate level, workload management (3.21) and knowledge retention (3.21). Pearson  $r$  revealed that the two variables show a very strong positive relationship. Therefore, it can be concluded that BSCS students at SNSU who continue to practice their discipline, prioritization, and scheduling, have a high chance of achieving good academic outcomes in terms of application, comprehension, and recall. This suggest that BSCS students who are good at managing their workload will be good at retaining their knowledge despite facing heavy academic workloads.

### VI. RECOMMENDATIONS

For students, it is recommended that students learn to properly manage workloads so that even if they are piled with many tasks, it will not be a hindrance to their knowledge retention. For teachers, it is recommended that they provide strategies and techniques to support their students in order to make their learning more effective. For the institutions, it is recommended for SNSU to make sure that the workloads students receive are balanced across their subjects, conduct academic programs, and provide guidance counseling service to support those students who are struggling and falling behind. For future researchers, it is recommended for them to explore other factors that affect knowledge retention aside from academic workloads. They can also explore what can be done to prevent students from cramming. It would be better if they increase their sample size and include other programs besides BSCS.

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