

CHAPTER 2

LITERATURE REVIEW

2.1 Student's Satisfaction

The origin of the word satisfaction comes from the Latin 'satis' meaning good or adequate and 'facio' meaning to make. In simple terms, satisfaction can be interpreted as an effort to fulfill something or make something sufficient. Munawar and Fuadaturrahmah (2021) reveal that customer satisfaction is the customer's response to the evaluation of the perception of the difference between initial expectations and actual service performance as perceived after services. So, student satisfaction is a student's response as a result of a comparison between perceived and expected. goals will occur if the institution is able to provide aspects that meet or exceed student expectations. Student responses to learning performance will be considered dissatisfied or disappointed if they cannot exceed student expectations, are considered to meet student expectations and are considered very satisfied or happy if they exceed student expectations. Previous research results related to students satisfaction can be seen at Table 2.1.

Table 2.1 Previous Research Results

NO.	Author/Year	Problem	Method	Finding of Evaluation
1.	Sari et al., 2019	To determine students satisfaction by lecturers teaching method in STIKOM Tunas Bangsa	Naïve Bayes	Students sastified with all aspects of lecturers teaching, such as communication, build a learning atmosphere, students evaluation, and delivery of learning materials
2.	Parlambang and Fauziah, 2020	Clustering students satisfaction by academic services	K-Means	From 248 students, 142 students dissatisfied, 23 students satisfied, and 83 students very satisfied to the academic services in Universitas Pandadaran

NO.	Author/Year	Problem	Method	Finding of Evaluation
3.	Nanda et al., 2020	To determine students satisfaction level by academic services	K-Means	From the K-Means method calculation, the most dominant aspect in STMIK Pringsewu students satisfaction is responsiveness aspect.
4.	Oktafianto, 2016	Analyze students satisfaction by academic services	C4.5 Algorithm	Responsibility aspect is the most influenced to STMIK Pringsewu students satisfaction.
5.	Yuda Perwira, et al., 2022	Analyse students satisfaction by online learning	C4.5 Algorithm	The most important aspects of the students satisfaction is interaction facility and online learning facility.
6.	Wanda Rizki Fadillah, et al., 2020	Measuring students satisfaction level with the performance of computer laboratory assistants	C4.5 Algorithm	The most influenced aspect of the students satisfaction by performance of computer laboratory is reliability aspect.

2.2 Factors That Affecting Student Satisfaction

Student's satisfaction is influenced by the difference between what students expect and the situation provided by the university in an attempt to fulfill the students expectations (Rahmawati, 2013). The main factors that affect service quality are expected service and perceived service. If the service is deemed to be in accordance to what students expected, then the service quality will be perceived well by students. Otherwise, if the service is perceived to be worse than expected, the service quality will be perceived as bad by students. Therefore, service quality will depend on the ability of service providers to consistently meet student's expectations (Sulastri, 2016).

Student's satisfaction is determined by several factors that lead to a sense of satisfaction and dissatisfaction that felt by students (Rahmawati, 2013). The factors that influence student satisfaction with learning performance are as

follows:

1. Quality of service.

Related to services, such as guarantees, responses, and problem solving. Students will feel satisfied if they get a good service and as students expected. Good and satisfactory service will produce a good response from students towards related educational institutions.

2. Quality of product.

Related to the product, such as product quality, product form, and reliability. Students will be satisfied if the university using the high quality products to fulfill the student's expectation.

2.3 Dimensions of Student's Satisfaction

Student satisfaction is a personal perception that meets their needs and expectations of the quality of service or learning provided by the higher education institution where they study (Sukmanasa et al., 2017). Measuring the level of student satisfaction is difficult to do because services are not tangible. There are 5 aspects to calculate student satisfaction:

1. Reliability is a dimension that measures the reliability of higher education institutions in providing quality learning in accordance with the needs and expectations of students.
2. Responsiveness is a dimension that measures the response or accuracy of the actions of higher education institutions in responding to and overcoming student problems and complaints.
3. Assurance is a quality assurance dimension that assesses teaching staff in higher education institutions in instilling trust and confidence in students through interactions made by lecturers and students.
4. Empathy is a dimension that measures the services provided by higher education institutions in understanding the individual or personal needs of their students.
5. Tangibles is physical evidence that during learning the higher education institution provides adequate physical facilities and lecture equipment to its

students.

2.4 Offline Learning

Offline / face-to-face learning is a teaching and learning activity that relies on the presence of teaching lecturers to teach student attendance in the classroom. In offline / face-to-face learning students are involved in spontaneous verbal communication in the physical environment (Anggrawan, 2019). Student's attendance in face-to-face lessons as having an effect on psychological, emotional and absorbing learning materials and solutions to learning problems. The relationship between student's attendance and student's satisfaction in participating the lectures is the main concern for face-to-face learning. This means, a supportive learning environment will be the main thing in face-to-face learning, if the learning environment is suitable for students it will increase student's learning motivation which will have an impact on better learning outcomes.

2.4 C4.5 Algorithm

The decision tree method transforms a very large fact into a decision tree that represents the rules. Rules can be easily understood with natural language. C4.5 is one of the best known and most widely used decision tree algorithms (Cherfi et al., 2018). Its accuracy level is high enough, independently of the data volume to be processed. One of the latest studies that compares decision trees and other learning algorithms shows that C4.5 has a very good combination of error rate and speed. The C4.5 algorithm is a development of ID3 which can classify data using the decision tree method which has the advantage of being able to process numeric (continuous) and discrete data, can handle missing attribute values, produce rules that are easy to interpret, and are the fastest among other algorithms an algorithm that uses the main memory in the computer (Zer et al., 2022). Decision tree is a very strong and famous classification and prediction method (Damanik et al., 2019).