



## **Impact of Biometric Attendance System in Higher Educational Institutes (HEIs) of India: A Perception Study of Stakeholders of Selected HEIs of Ranchi (India)**

Ms. Surabhi Sanchita<sup>1</sup>, Dr. Sukanta C. Swain<sup>2</sup>

<sup>1</sup>surabhi3sanchita@gmail.com  
Research Scholar  
ICFAI University Jharkhand, Ranchi

<sup>2</sup>sukanta@ibsindia.org  
Professor & Asst. Dean  
ICFAI University Jharkhand, Ranchi

### **Abstract**

The recent decade has become highly competitive with mushroom growth of Higher Education Institutes (HEIs) in India. These institutions need to prove themselves by rendering higher quality services and better productivity in highly competitive scenario. The faculty members and students are the two eminent stakeholders of the HEIs, and for the efficiency of the organizations, both set of stakeholders, i.e., faculty members' and students' active involvement in each and every facet of functioning is a must which demands discipline in attendance and honesty in involvement. HEIs today are thus introducing some system for monitoring or assessing quality and regularity of both the faculty members and students for increasing the productivity and efficiency. On this backdrop, the Bio-metric system of attendance both for the students and employees of HEIs has been thought of in recent times to make the stakeholders disciplined and task-oriented. Considering this, while it has been a matter of temptation to introduce the system, it has also been equally important to assess the impact after adopting the technology of the stakeholders for who the system is going to be put into action. Thus, this Paper has considered two HEIs of Ranchi (India) who have already introduced Biometric Attendance System (BAS), to assess the projected impact of new technology in increasing organization's productivity and efficiency.

**Key words:** Biometric Attendance System, Higher Educational Institutes, Impact, Awareness, Acceptance, productivity, efficiency.

### **1. Introduction**

Biometric Attendance System (BAS) is the automated technology used for verification of employees attendance resulting in less attendance and payroll disputes. The Biometric identifies the people based upon their physical characteristics; most commonly their fingerprints, hands, eyes, or facial features; in which the person himself becomes the lone source of

information, say for time attendance and security within the company, and not by what he/she has to input through paper and pen data. This prevents fraud like, one employee punching for another. BAS, being laser produced verification among humans, has been noted to have greater impact in organizations already using it.

It creates the expansion of “paperless” works with regards to jotting the attendance checks of employers. Being paperless, it is environment friendly too, contributing to saving of trees and environment.

Unlike the conventional methods, when attendance sheets were provided to the employees and the employees used to record for themselves the day and time they come in and out from office which was likely to be biased and mostly not reflecting the real record of his/her attendance. With this machine, this has been clearly phased out since that employee who comes to the workplace directly go to the biometrics machine and by that moment, the day and time is recorded on computer data and can never be changed. So, being late is greatly avoided and in one’s absence, the action to lie over it is also avoided.

One of the most detrimental and frustrating trends that many Higher Educational Institutions (HEIs) face nowadays is the employee attendance issue clubbed with late coming and early leaving the workplace. Students also do bunk classes and recording their attendance manually is a tedious job and computing the attendance percentage also becomes a major task as manual computation likely to produce errors, resulting in more wastage of time. Even if with efforts the errors are deviated but in traditional method there is scope of manipulation in attendance records and allied records both by employees and students resulting in non reflection of the real records of one’s attendance. . This system had lots of demerits such as requiring manpower for record keeping, adding cost of operations and scope of lapses in accuracy.

But for the efficiency of the organizations, both set of stakeholders, i.e., faculty members’ and students’ active involvement in each and every facet of functioning is a must which demands discipline in attendance and honesty in involvement. Higher Education Institutions (HEIs) today are thus under increasing pressure to introduce some system for monitoring or assessing faculty and students regularity in the organisation which is more accurate and free from emotional aspects like favouring or leniency resulting in increasing productivity and efficiency. Biometric Attendance System comes as a solution to the challenge and plays vital role in monitoring the regularity as well as ‘in and out’ time of the employees, students, staff. BAS, being a machine oriented technique, is free of emotional aspects like favouritism and any leniency for one or the other.

## **1. Objective & Methodology:**

While it has been established that the Biometric Attendance System (BAS) in corporate is indeed a must and a part and parcel of corporate culture, the adoption of the BAS in HEIs has been taken momentum in recent times. However, mere adopting a system is not enough and fruitful unless the system fetches some tangible result to the HEIs in question. Keeping this in mind, the objective of the study is set to ascertain the projected impact of BAS on employees, mostly faculty members, and students of selected HEIs as regards to the work culture and disciplined attendance system. The study aims to outline the perception of faculty members and students of selected HEIs regarding the impact of Biometric Attendance System (BAS).

**Methodology** – The study is basically empirical one based on both primary and secondary data. While the secondary data is obtained from the existing literature, the primary data is collected through a structured questionnaire administered with two set of prime stakeholders of one premiere University at Ranchi and another Management institute of Ranchi. On request, the names of both the organizations have not been revealed. The questionnaire was bifurcated and customized for

administered on two different groups of stakeholders. As usual, while the first part of the questionnaire was designed to obtain the demographic data of the respondents, the subsequent part was designed to unfold the impact of BAS on HEIs revealing the efficiency of the stakeholders targeted and thus of the HEIs studied. For ascertaining the impact of BAS, Likert Scale (5-Point) has been used.

From the two HEIs studied, the sample size taken into account is 71 out of which 44 are student respondents and 27 are employee (faculty and staff) respondents.

The detailed sample units are mentioned in table 2.1.

**Table 2.1 Categories of sample units studied**

Employees		Students	
Category	Units Considered	Category	Units Considered
Working after Superannuation	10	MBA	14
Yet to be Superannuated	17	BCA	09
		BBA	07
		B. Tech.	05
		Hotel Management	04
		Diploma	03
		B. Com	02
<b>Total</b>	<b>27</b>	<b>Total</b>	<b>44</b>

Source: Primary data

## 2. Data Analysis:

### 2.1. Details of respondents age –wise

Out of 27 employee respondents studied, 14 are in the age-group 25-40, six are in the age-group 40-60 and seven are in the age-group 60 and above, i.e., employees working after superannuation. Age-wise segregation of employee respondents is presented in the table. 3.1

Age group	No. of Employee respondents age wise
Below 25	0
25 – 40	14
40 – 60	6
Above 60	7
Total =	27

Table 3.1: Source: Primary data

### 3.2. Number of respondents on the basis of superannuation

Out of 27 employee respondents considered, while 10 are working after superannuation from their previous jobs (mostly superannuated from public sector undertakings and/or government departments), 17 are in the normal course of their profession and are yet to be superannuated. The same is presented in the table. 3.2. Although in absolute sense, i.e., the number of superannuated employees is less than that of otherwise, percentage-wise, the participation of superannuated employees is appreciable.

Category of employees on superannuation basis	No. of the respondents on Superannuation basis
Superannuated	10
Non- superannuated	17

Table 3.2: Source: Primary data

### 3.3 Number of respondents gender-wise

On gender basis our respondents for our questionnaire comprised of twenty two (22) male and five (5) female which is equally represented in the table 3.3. given below.

Gender	No. of respondents Gender wise
Male	22
Female	5

Table 3.3: Source: Primary data

### 3.4 Number of respondents department –wise

#### Employee Respondents: Department -wise

Out of 27 employee respondents studied, while 19 are from Academics, six and two are respectively from Administrative and Branding/Marketing departments.

It is clear from the table 3.4. that participation of employees from academics is the highest and in deciding whether there is a need of BAS in HEIs, the responses of employees from academics matter.

Table 3.4. Department-wise employee respondents are presented in the table given below:

Departments	No. of Respondent Department wise
Administrative	6
Academics	19
Branding/Marketing	2
IT	1

Source: Primary data

### 3.5. Respondents on basis of work experience

#### Employee respondents categorised on basis of work experience

Employee respondents studied have been categorized into four groups on the basis of number of years of work experience. These four categories are; work experience up to 5 years, 6-15 yrs, 16-30 yrs and above 30 yrs. No. of employee respondents studied under the above mentioned four categories is presented in the table. 3.5.

Table 3.5. Work Experience wise Respondents

Work experience categories	No. of respondent on Work experience basis
Less than up to 5 yrs	6
6yrs-15 yrs	9
16-30yrs	4
Above 30 yrs	7

Source: Primary data

### 3.6 Respondents on basis of reporting time

#### Employee respondents: Reporting time-wise

Employees' respondents had different reporting time and it has been shown in the table 3.6 given below. It has been observed that 52% of the respondents reported on right time, 28% respondents reported before scheduled time, 12 % of the respondents were less than 10 minutes late while reporting and 8 % of the respondents were late by more than 10 minutes while reporting on duty. The same has been shown in table:3.6 below.

Table: 3.6. Employee respondents: Reporting time-wise

Reporting time categories	No. of respondents on reporting time wise
On right time	13
Before scheduled time	7
less than 10 minutes late	3
Late by more than 10 minutes	2

Source: Primary data

### 3.7 Number of respondents as per computer savvyness

#### Employee respondents on the basis of their computer savvyness

The respondents to our questionnaire on basis of their know-how of computer were divided on different categories and out of total 27 respondents 17 were computer savvy, 2 were not computer savvy and 8 had know-how of computer to some extent. The same has been shown in the table 3.7.

Table 3.7: Employee respondents on the basis of their computer savvyness

Computer savvy Employees category	No. of respondents on basis of being computer savvyness
Yes	17
No	2
To some extent	8

Source: Primary data

### 3. Perception of Stakeholders regarding impact of BAS

In order to know the perception of the respondents regarding the impact of BAS in HEIs, two sets of respondents, i.e., the employees and the students were interviewed on different facets, as exhibited below, in a rating scale [5-point Likert Scale: 1-Strongly Disagree (SDA), 2- Disagree (DA), 3 -Neutral, 4 – Agree, 5 – Strongly Agree (SA)].

#### 3.1. Employees perception regarding BAS impact

##### 3.1.1. BAS will make the attendance system discipline

Employees’ perception regarding the BAS impact on making the attendance system disciplined had been surveyed and out of total respondents only 6 respondents disagreed with BAS impact on making the attendance system disciplined. The same has been shown in the Figure below:

Statement	Level of Agreement of employees				
	1 (SDA)	2 (DA)	3 (Neutral)	4 (Agree)	5 (SA)
BAS will make the attendance system discipline	4	2	3	8	10

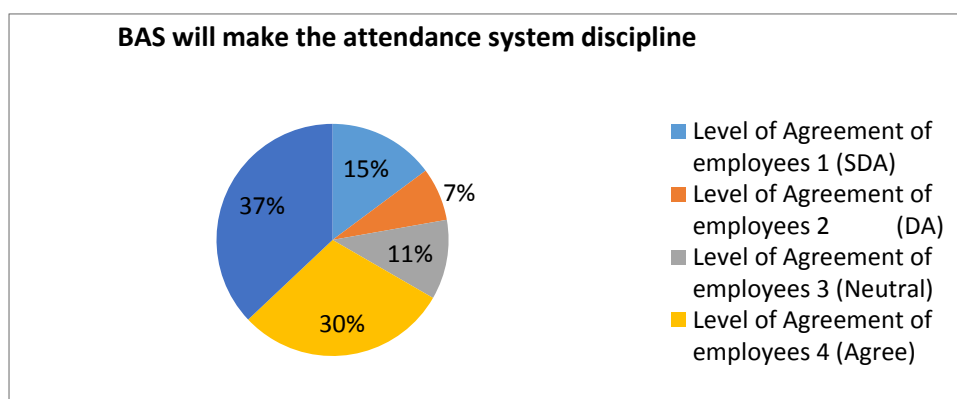


Fig. 4.1.1: Source primary data

##### 3.1.2. BAS will reduce payroll disputes

Employees perception regarding BAS impact in reducing payroll disputes had been surveyed by our questionnaire and it has been found that 30% of the respondents disagree BAS will be reducing payroll disputes while 15% were neutral towards BAS impact and 55% agreed that BAS played vital role in reducing payroll disputes. The same has been shown the figure 4.1.2.

Statement	Level of Agreement of employees				
	1 (SDA)	2 (DA)	3 (Neutral)	4 (Agree)	5 (SA)
BAS will reduce payroll disputes	4	4	4	9	6

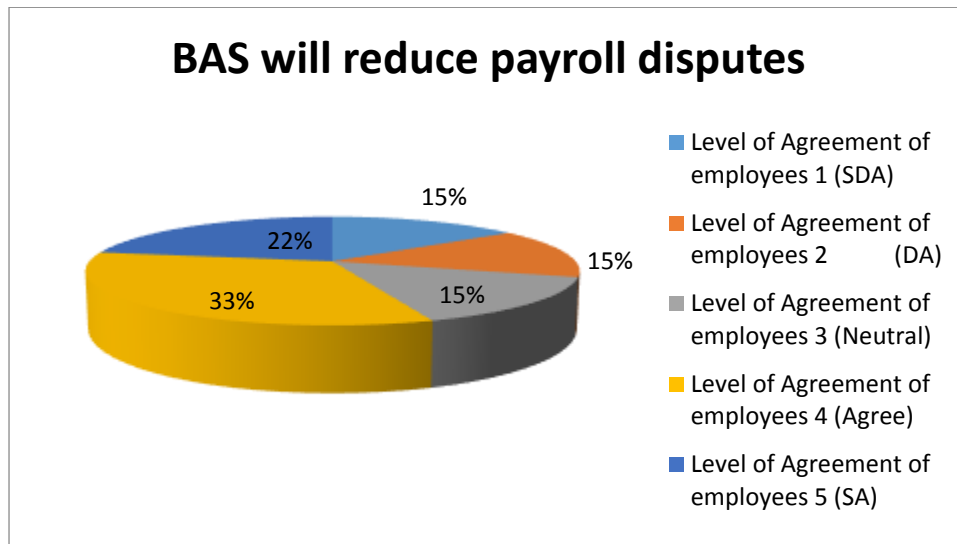


Fig. 4.1.2: Source primary data

### 3.1.3. BAS will wipe out the favouritism by the local leader

Employees' perception regarding BAS impact in wiping out favouritism by the local leaders had been assessed through our questionnaire. Out of total respondents 21% of respondents have disagreed BAS role in wiping out favouritism by the local leader, 25% were neutral about it while 29% agreed and 25% strongly agreed to BAS impact in wiping out favouritism by local leader. The same has been depicted below in the figure 4.1.3.

Statement	Level of Agreement of employees				
	1 (SDA)	2 (DA)	3 (Neutral)	4 (Agree)	5 (SA)
BAS will wipe out the favouritism by the local leader	3	2	6	7	6

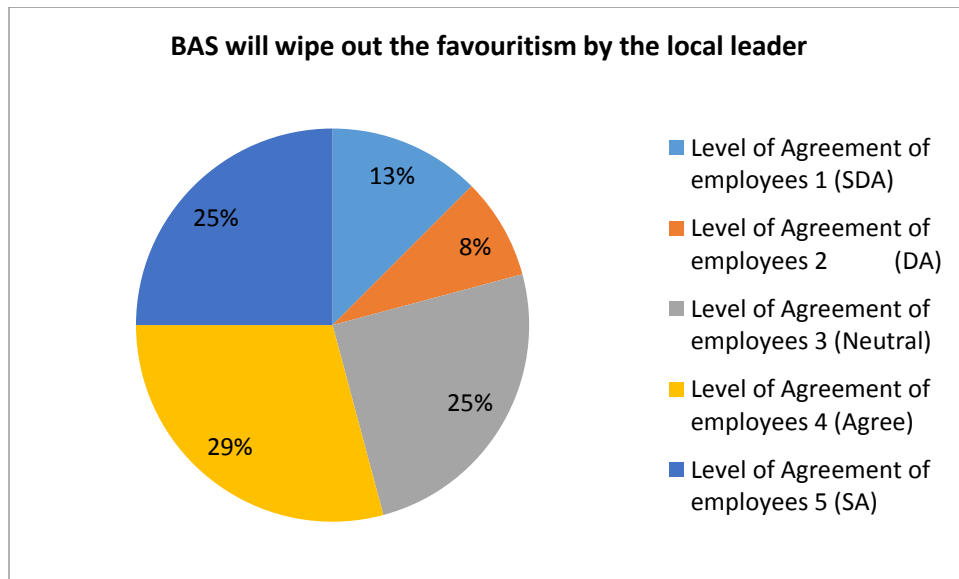


Fig. 4.1.3: Source primary data

**3.1.4. BAS will make the local leaders punctual, who, in absence of BAS, have been taking the advantage of leadership**

The employees’ perception considering whether the BAS will make the local leaders punctual has been depicted in the figure 4.1.2 below. It has been observed through replies of respondents to our questionnaire that only 26% disagreed to BAS making the local leaders punctual while 55% agreed to it and 19% of respondents were neutral.

Statement	Level of Agreement of employees				
	1 (SDA)	2 (DA)	3 (Neutral)	4 (Agree)	5 (SA)
BAS will make the local leaders punctual, who, in absence of BAS, have been taking the advantage of leadership	3	4	5	9	6

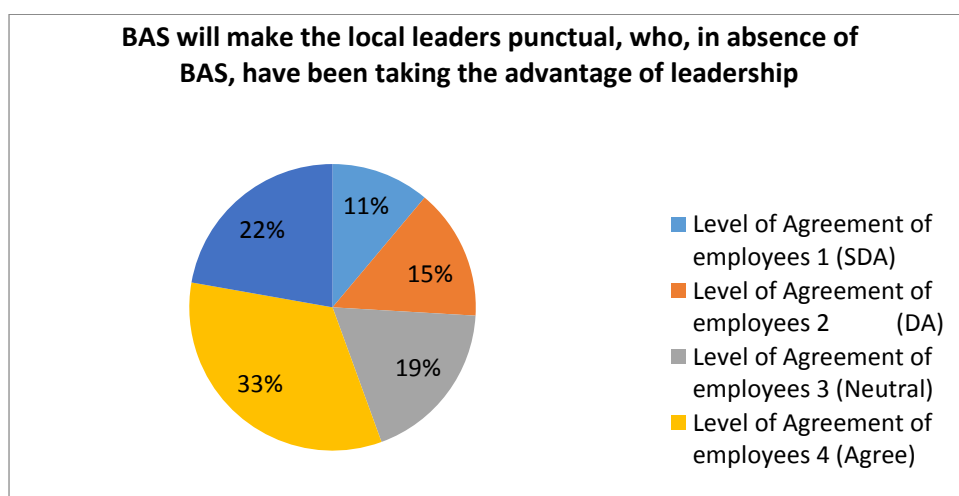


Fig.4.1.4: Source Primary data



**3.1.5. BAS in no way make the functioning of HEIs better**

Employees view regarding whether BAS will not be making functioning of HEIs better had been surveyed through our questionnaire. According to the response it had been found that majority of the respondents believed that BAS will make the functioning of HEIs better as 54% disagreed that BAS in no way make functioning better but at same time 23% were neutral about it and 23% of respondents equally disagreed to BAS non impact in making the functioning of HEIs better. The same has been shown in the figure 4.1.5. below.

Statement	Level of Agreement of employees				
	1 (SDA)	2 (DA)	3 (Neutral)	4 (Agree)	5 (SA)
BAS in no way make the functioning of HEIs better	10	4	6	2	4

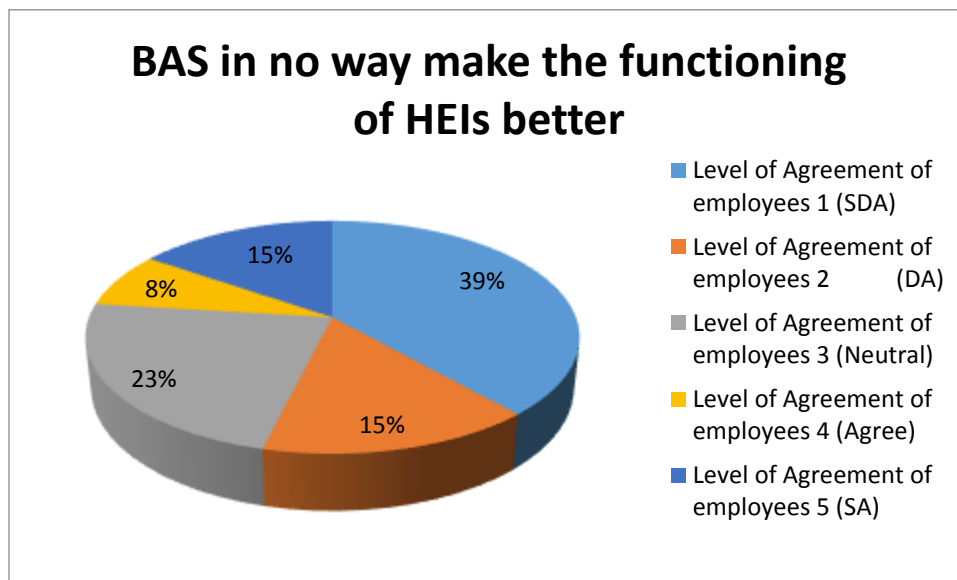


Fig: 4.1.5. Source: Primary data

**4.2 Student’s perception regarding BAS impact**

Student’s perception regarding BAS impact has also been assessed on various facets as:

**4.2.1. BAS will make the attendance system discipline**

Student’s perception regarding BAS impact on making attendance system discipline has been assessed through our questionnaire. It has been found that only 9% of the respondents disagreed to BAS role in making attendance system discipline, while majority of the respondents i.e. 82% of respondents believed BAS impact in making the attendance system discipline while only 9% of respondents were neutral too. The same has been depicted in figure 4.2.1 below.

Statement	Level of Agreement of Students				
	1 (SDA)	2 (DA)	3 (Neutral)	4 (Agree)	5 (SA)
BAS will make the attendance system discipline	1	3	4	12	23

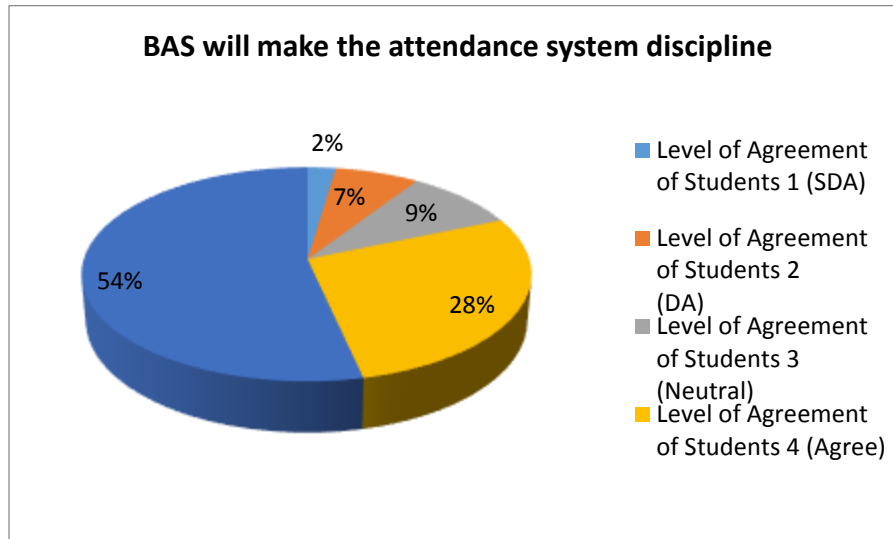


Fig.4.2.1. Source: primary data

#### 4.2.2. BAS will reduce barring issues for appearing in exam

Student's response toward BAS impact in reducing barring issues for appearing in exam had been surveyed through our questionnaire and found that majority of the respondents agreed to BAS role in reducing barring issues from appearing in exam while only few agreed to it or were neutral to it. This has been noted that no respondents strongly disagreed to BAS impact on reducing barring issues from appearing in exam. The same has been illustrated in the figure 4.2.2 below.

Statement	Level of Agreement of Students				
	1 (SDA)	2 (DA)	3 (Neutral)	4 (Agree)	5 (SA)
BAS will reduce barring issues for appearing in exam	0	2	8	15	17

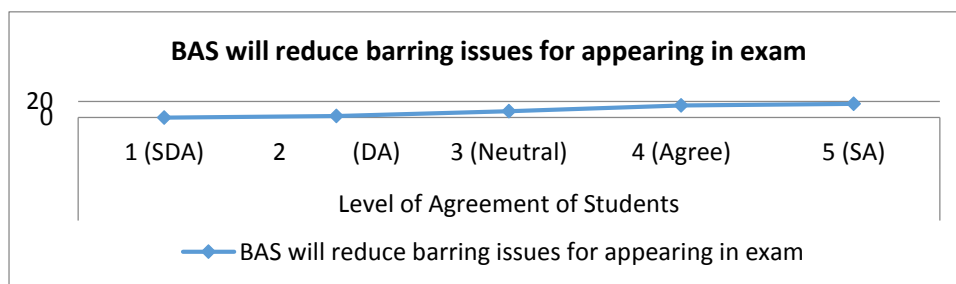


Fig.4.2.2. Source: primary data

**4.2.3. BAS will wipe out the favouritism by the faculty members or Class Representatives**

The students' perception regarding BAS role in wiping out favouritism by the faculty members or class representatives through our questionnaire survey appeared that majority of them agreed BAS success in wiping out favouritism by the faculty members or class representatives, only 11% of the total respondents disagreed to it and 16% were neutral, rest all agreed to BAS positive role towards it. The same has been illustrated in figure 4.2.3. given below.

Statement	Level of Agreement of Students				
	1 (SDA)	2 (DA)	3 (Neutral)	4 (Agree)	5 (SA)
BAS will wipe out the favouritism by the faculty members or Class Representatives	4	1	7	22	10

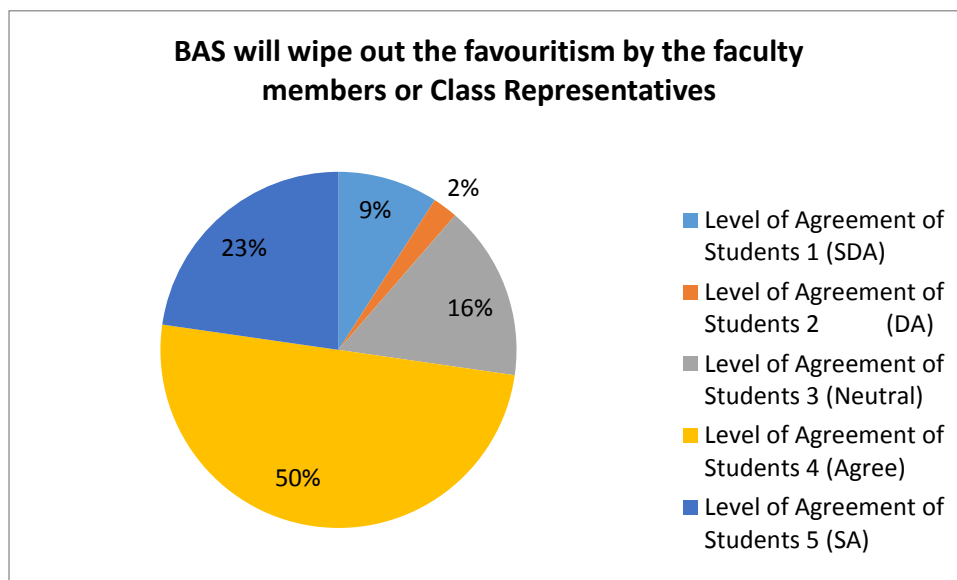


Fig. 4.2.3. Source: Primary data

**4.2.4. BAS will make the faculty members along with the local leaders punctual, who, in absence of BAS, have been taking the advantage**

Student's perception regarding BAS impact in making the faculty members & local leaders punctual had been surveyed and appeared that majority of them believed that BAS had made the faculty members and local leaders punctual while only 12% disagreed to BAS impact and 20% were neutral to it. The same has been depicted in figure 4.2.4 below.

Statement	Level of Agreement of Students				
	1 (SDA)	2 (DA)	3 (Neutral)	4 (Agree)	5 (SA)
BAS will make the faculty members along with the local leaders punctual, who, in absence of BAS, have been taking the advantage	2	3	9	12	18

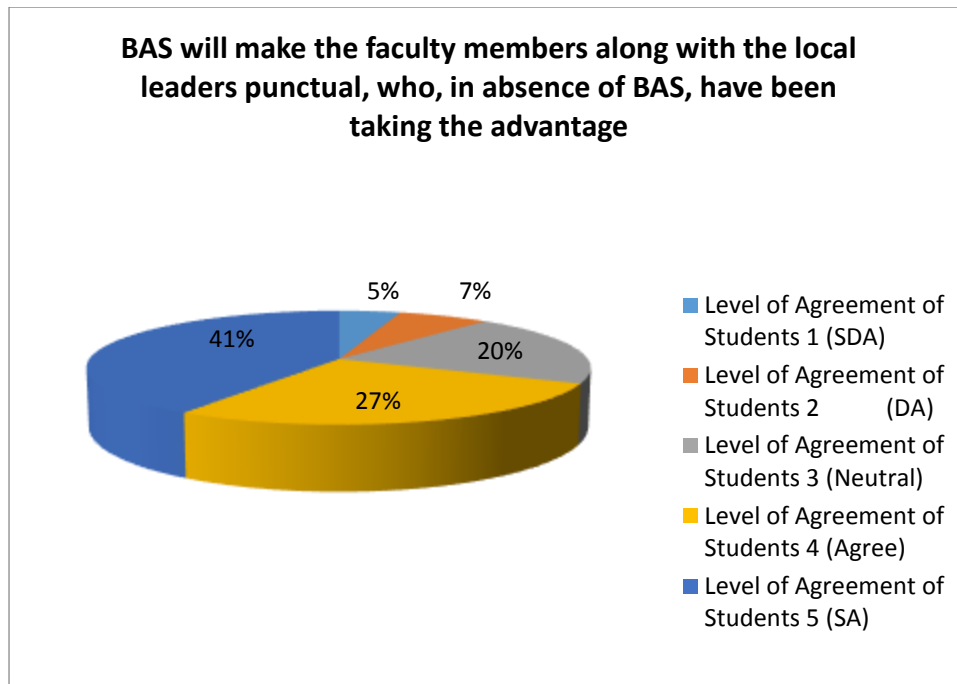


Fig. 4.2.4. Source: Primary data

#### 4.2.5. BAS in no way make the functioning of HEIs better

Student's perception regarding BAS in no way making the functioning of HEIs better scenario was that 56% of the respondents believed BAS made impact and 20% were neutral while only 25% agreed to BAS made no impact in making the functioning of HEIs better. The same has been shown below in figure 4.2.5.

Statement	Level of Agreement of Students				
	1 (SDA)	2 (DA)	3 (Neutral)	4 (Agree)	5 (SA)
BAS in no way make the functioning of HEIs better	15	9	9	7	4

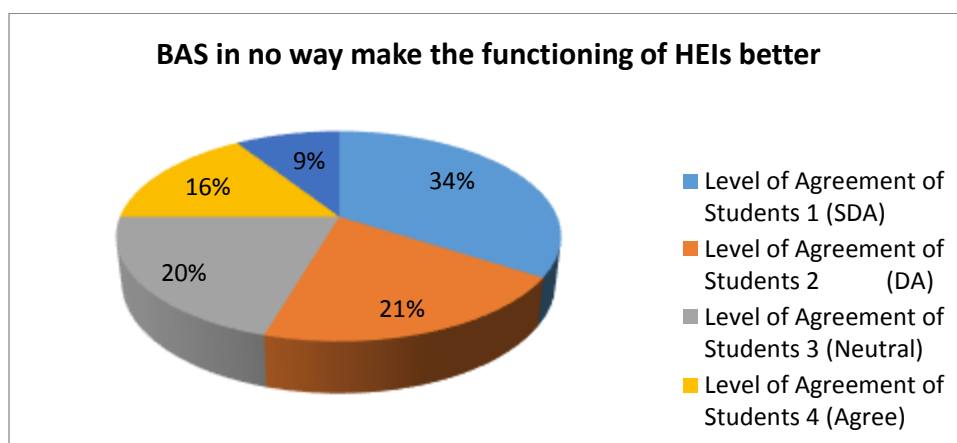


Fig. 4.2.5. Source: Primary data

## 4. Findings:

On the basis of analysis done in previous sections concerning demographic data and data regarding impact of BAS in HEIs in India, particularly in Ranchi (Jharkhand), it is found that while employees from different wings had participated in the

survey, highest participation was from the academics wing. On the front of age-group, respondents belonging to the age-group 25-40 had the highest participation. However, employees above 60 years old participated the most percentage-wise. In the context of participants in work experience, 58% of the employee respondents were having work experience of below 15 years. It means, most of the respondents were from the younger generation. It is found that out of the employee respondents, more than 50% report at the office on time and nearly 25% of the respondents report at the office before the scheduled time. It is also found that an insignificant percentage of the respondents were not computer savvy. It is obvious as both the HEIs covered under study basically offer professional programs. Among the student respondents, representation was from Diploma level to PG level and that too, all the respondents are from professional programs.

Considering the impact of Biometric attendance system (BAS) in Higher Educational Institutes (HEIs) both the group of respondents i.e. the employees (faculty members, administrative staff) and students had various opinion but on whole all of them believed BAS playing significant role and impacting the various functions of HEIs. According to our questionnaire survey it has been found that 67% of employee respondents and 82% of student's, believed that BAS had and will make the attendance system discipline. Insignificant number of respondents disagreed to BAS impact in making the attendance system discipline. In the context of BAS reducing the payroll disputes too employees viewed BAS making positive impact towards it, similarly students believed BAS playing vital role in reducing barring issues from appearing in exam. BAS impact regarding making the local leaders and faculty members punctual both majority of employees and students agreed to BAS making them punctual which was not there in absence of the BAS. Regarding BAS role in wiping out favouritism by faculty members or class representatives 73% of student's respondents agreed to it, only 11% of them disagreed and 16% were neutral to it. Re-establishing that majority could see the impact of BAS in reducing favouritism by faculty members or class representatives. Similar was the status of employee respondents majority of them agreed to BAS impact in wiping out favouritism by the local leaders and only negligible number of respondents disbelieved BAS role in wiping out favouritism by the local leaders. In the context of BAS making in no way functioning of HEIs better too both employees and students strongly disagreed or disagreed to it hence believing BAS impact making the functioning of HEIs better.

## **5. Conclusion:**

On the basis of the findings of the study, it is inferred from the perspectives of the students and employees that BAS will have positive impact on the performance of HEIs. The respondents perceive that BAS will make the attendance system discipline with reducing payroll disputes for employees as well as reducing barring issues from appearing in exam for students. BAS will play vital role in removing favouritism and making the local leaders as well as faculty members more punctual. Thus BAS will impact to make the functioning of HEIs smoother and better. But as per our survey, a good number of respondents have either disagreed or are neutral to it. Their responses might have been due to shortcomings viewed by them which were invisible to others or owing to their own experiences.

In Ranchi, Jharkhand two HEIs have adopted the BAS and its impact is still under scanner. Biometric attendance system, being automated, is free from human emotions. So the shortcomings or lacuna must not be in the BAS rather may be in its implementation which is done by human beings influenced by various factors. Thus need of time is not just assessing its impact but better implementation by management rising above emotions and various discrepancies for gaining fullest benefit from Biometric Attendance System (BAS).

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