



Difficulties In Conceptualising Life Science Concepts of Undergraduate Students of Chhattisgarh: An Analytical Study

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ABSTRACT

The purpose of the study was to analyse the difficulties in conceptualising life science concepts of under graduate students of Chhattisgarh state. For the present study a total of two hundred (200) B.Sc. 3rd year Zoology students of Guru Ghasidas Vishwavidyalaya and Atal Bihari Vajpayee University Bilaspur, (C.G.), India was selected. For the present study researcher has selected students those who are studying in B.Sc. 3rd year at the time of data collection. For the collection of data researcher has constructed "DIFFICULTIES IN CONCEPTUALISING LIFE SCIENCE CONCEPT PRIORITY SCALE" and implemented purposive sampling technique. In this present study only ten (10) life science concepts of B.Sc. 3rd year Zoology subject were taken and remaining zoology concepts of B.Sc. 3rd year has not been considered. After collection of data through this tool researcher has analysed the quantitative data by using descriptive statistics. On the basis of results and findings of the study for every concept different reasons are responsible but irregular teachings learning process, improper study habits and non-adequate facilities at the institution were some of the most common reasons students' faces in conceptualizing life science concepts.

Keywords: Life Science concepts, conceptualising, analysis

THRESHOLD

Education considered as the instrument for the development of human society as it acts as the backbone for the betterment of human civilization and science plays a vital role in our lives. According to Fitzpatrick (1960) Science is defined as "a cumulative and endless series of empirical observations which result in the formation of concept and theories of knowledge and the process of acquiring it (Bhatt, 1983).to solve the problem of our daily life we should have good concept learning of life science concepts. Science is the human activity aims at solving the problems and answering the questions by doing experiment it is a dynamic, expanding body of knowledge.

Science is a vast area of knowledge which covers all the areas like physical, chemical and the biological world of living beings. Life-science as a whole is the study of living beings. This is the science where the structure, nature, and functions of living beings are studied. Life-science is

formed by the process of observation as for example when the student forms a hypothesis about a camel, he/she analyses the features of a camel how are they adapted to survive in adverse desert condition and draws the interferences. The student then applies this scientific knowledge in the daily life. National Curriculum Framework (NCF, 2005, P: 65) mentioned that in his progressive forward-looking society, science plays a truly liberating role, helping people escape from the vicious cycle of poverty, ignorance and superstition. People today are facing the increasingly fast changing world where the most important skills (flexibility, innovation and creativity) are very much important to survive. Hence, the different imperatives have to be kept in mind in shaping Life-science education. So Life-science education will become true when it will able to shape and mould a child's life towards the implications in daily lives but in educational institutions it is observed that life science is taken just like other theory subjects and teachers theoretically cover the syllabus and exam conducted on the basis of learning science concept students get the score and promoted to the other grade but this is not the right way of teaching life science subject because this subject needs practical based knowledge along with concept clarity or we can say concept clarity comes along with practical knowledge of the concepts. There are so many reasons responsible for the difficulties in life science concept learning.

Tlala, Kibirige and Osodo (2014) made a study titled " Investigating grade 10 learners' achievements in photosynthesis using Conceptual change model", investigate Grade 10 learners' achievements in photosynthesis by using the Conceptual Change Model (CCM) to develop understanding of photosynthesis in rural high schools in South Africa. A quasi-experimental design was used with a sample of 78 Grade 10 learners. Achievement test, learning materials and a questionnaire were used to collect data. Data were analysed using descriptive statistics, t-test, Analysis of covariance (ANCOVA) and Pearson correlation. Results from study revealed that Experimental Group taught using the CCM exhibited higher achievements than the Control Group taught using traditional approach. 2) CCM positively influenced learners' attitudes towards Life -Sciences.

Nee (2014) made a study titled " the effect of educational networking on students' performance in biology" to investigate the impacts of incorporating Edmodo educational network, into a classroom setting on the academic achievement of Biology students based on three types of Conceptual level comprises of direct, simple, and complex concept. A total of 140 Biology students were selected from three secondary schools by using convenient random Sampling technique. A mixed methods design which involved pre-test and post-test was obtained as quantitative data and follow-up with in-depth Interview was obtained as qualitative data. Mann-Whitney U tests were used to analyse students' gain Scores. The data collection instrument was a paper and pencil test which consisted of pre-test in a form of 40 items included objective and multiple choice objective questions, interview in the form of open-ended questions was conducted on the informants after their data have been analysed . Interview schedule encompassed self-paced learning, boredom, Complex conceptual understanding, interesting and motivation, extra information and; communication and Interactivity as a educational network. The results indicated that 1) students that were instructed by the instruction with intervention Performed a larger on the gain scores of all the three cognitive levels; then those instructed by conventional approaches.2)Five themes presented in interview schedule facets of the curriculum as a new paradigm of teaching tools.

OBJECTIVE OF THE STUDY

To analyse the difficulties in conceptualising life science concepts in undergraduate students of Guru Ghasidas Vishwavidyalaya and Atal Bihari Vajpayee university of Bilaspur (C.G).

MATERIALS AND METHOD

200 respondents as sample were selected randomly from B.Sc.3rd year Zoology subjects of Guru Ghasidas Vishwavidyalaya (38) and Atal Bihari Vajpayee University Bilaspur, (C.G.) (162), India. The administration of questionnaire was done on the students of Guru Ghasidas Vishwavidyalaya and various colleges affiliated by Atal Bihari Vajpayee University (C.G.).

ADMINISTRATION OF THE TOOL

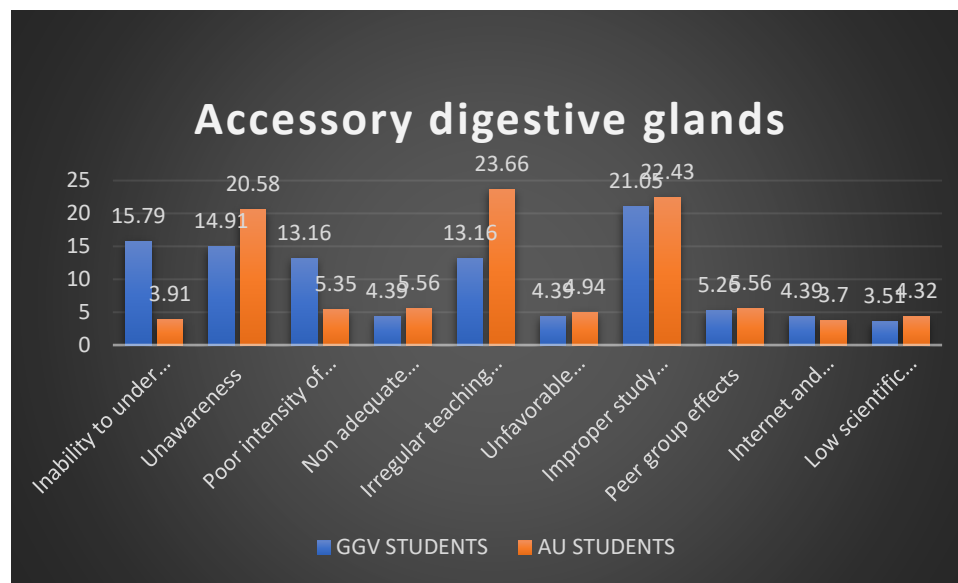
- ❖ To find out the reasons behind difficulties of life science concepts REASON BEHIND DIFFICULTY INVENTORY (RBDI) was used on undergraduate students of Guru Ghasidas Vishwavidyalaya, Bilaspur (C.G.) and undergraduate students of Atal Bihari Vajpayee university of Bilaspur (C.G) on the following difficulties i.e. Inability to understand concepts, Unawareness, Intensity of learning, Non adequate facilities at institutions, Teaching learning process, Home environment, Study habits, Peer group effects, Internet and Mobile phones, Scientific aptitude for the concepts- Accessory digestive glands, Sphygmomanometer, Flow cytometer, Accessory reproductive organs, ECG, Homeostasis, Chloride shift, Dialysis, Hormonal regulation in gametogenesis, In vivo and In vitro fertilisation.

ANALYSIS PROCEDURE AND FINDING THE RESULT ACCORDINGLY

Descriptive analysis has been used as statistical technique for the present study. The results and findings of the percentage in 10 selected reasons on 10 mentioned concepts in GGV students and AU students presented in table-1 below: -

Table-1: Difficulties in Conceptualising Life Science Concept Reason Wise Percentage of Students On -Accessory Digestive Glands

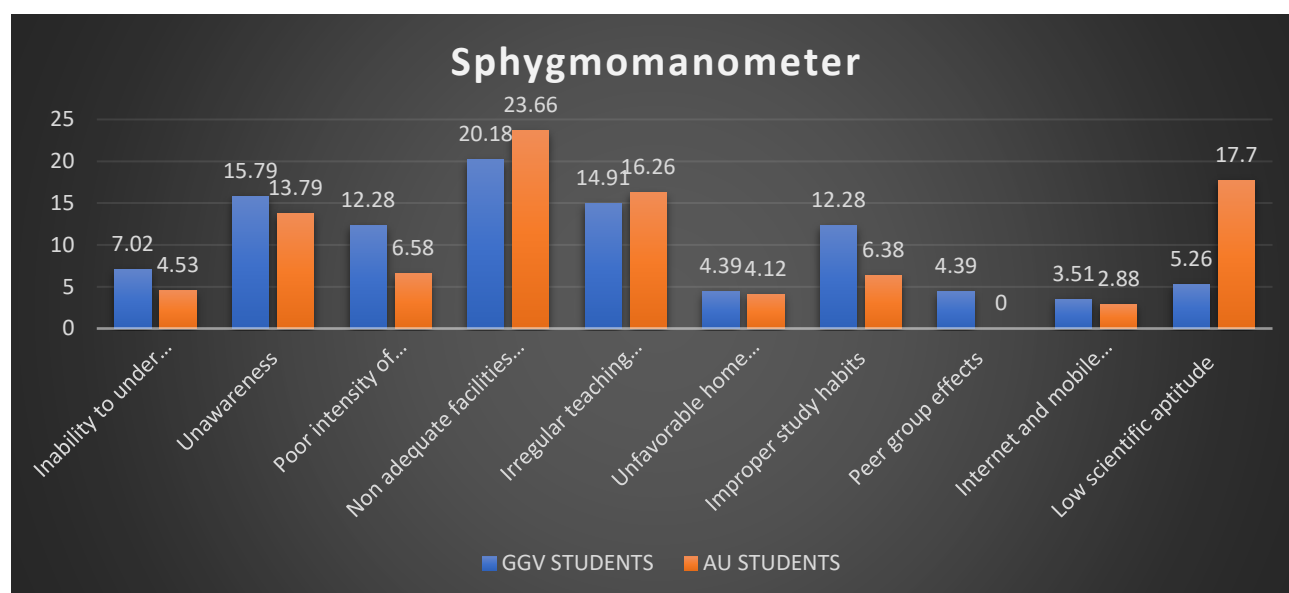
REASONS	STATEMENTS	GGV STUDENTS	AU STUDENTS
Reasons-1	Inability to understand concepts	15.79	3.91
Reasons-2	Unawareness	14.91	20.58
Reasons-3	Poor intensity of learning	13.16	5.35
Reasons-4	Non adequate facilities at institutions	4.39	5.56
Reasons-5	Irregular teaching learning process	13.16	23.66
Reasons-6	Unfavorable home environment	4.39	4.94
Reasons-7	Improper study habits	21.05	22.43
Reasons-8	Peer group effects	5.26	5.56
Reasons-9	Internet and mobile phones distraction	4.39	3.70
Reasons-10	Low scientific aptitude	3.51	4.32



From the above analysis of table -1 it can be concluded that there is difficulties in conceptualisation life science concept in undergraduate students of Guru Ghasidas Vishwavidyalaya Bilaspur (C.G.) and undergraduate students of Atal Bihari Vajpayee university of Bilaspur (C.G) on concept- *Accessory digestive glands* in all the selected ten reasons but major difficulties were found in reasons – R-2, R-5, R-7.

Table-2: Difficulties in Conceptualising Life Science Concept Reason Wise Percentage of Students On -Sphygmomanometer

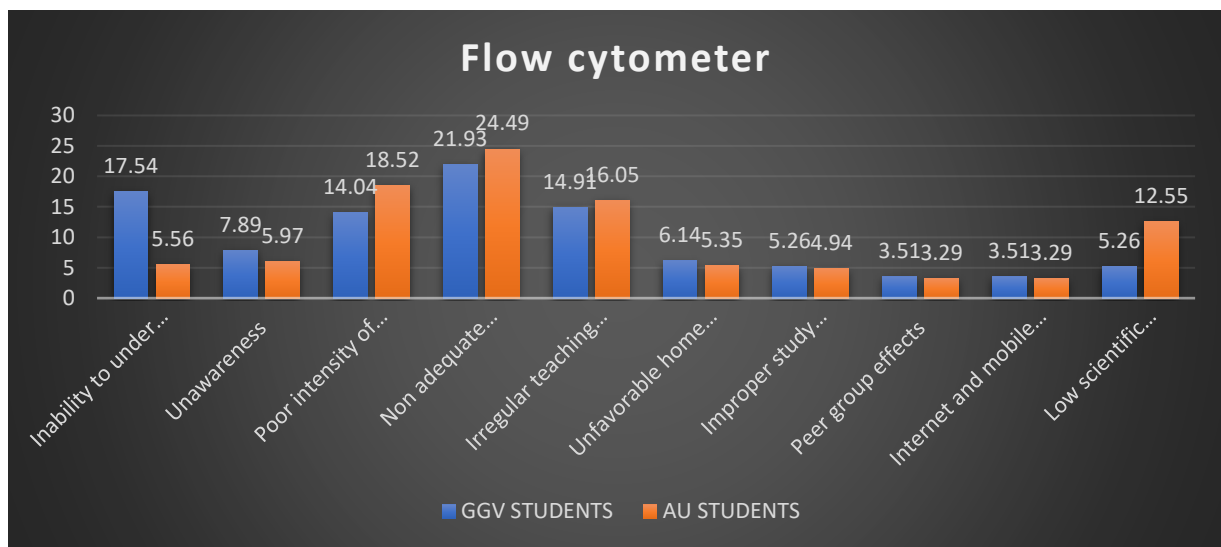
REASONS	STATEMENTS	GGV STUDENTS	AU STUDENTS
Reasons-1	Inability to understand concepts	7.02	4.53
Reasons-2	Unawareness	15.79	13.79
Reasons-3	Poor intensity of learning	12.28	6.58
Reasons-4	Non adequate facilities at institutions	20.18	23.66
Reasons-5	Irregular teaching learning process	14.91	16.26
Reasons-6	Unfavorable home environment	4.39	4.12
Reasons-7	Improper study habits	12.28	6.38
Reasons-8	Peer group effects	4.39	0.00
Reasons-9	Internet and mobile phones distraction	3.51	2.88
Reasons-10	Low scientific aptitude	5.26	17.70



From the above analysis of table -2 it can be concluded that there is difficulties in conceptualisation life science concept in undergraduate students of Guru Ghasidas Vishwavidyalaya Bilaspur (C.G.) and undergraduate students of Atal Bihari Vajpayee university of Bilaspur (C.G) on concept- *sphygmomanometer* in all the selected ten reasons but major difficulties were found in reasons but major differences were found in reasons –R-2, R-4, R-5.

Table-3: Difficulties in Conceptualising Life Science Concept Reason wise Percentage of Students On -Flow cytometer

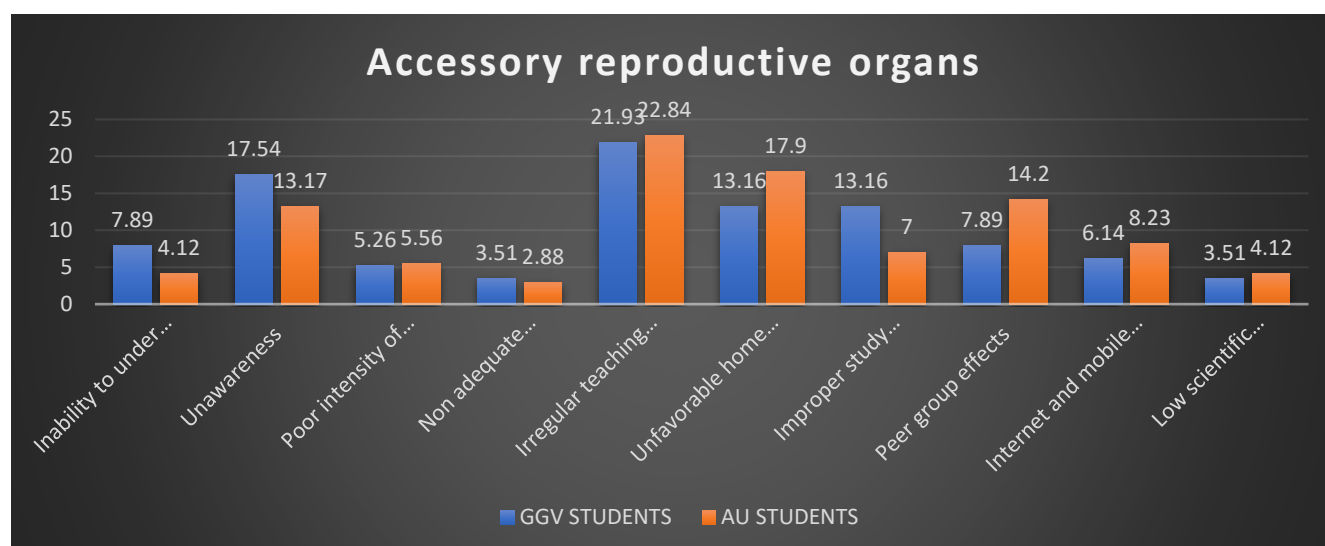
REASONS	STATEMENTS	GGV STUDENTS	AU STUDENTS
Reasons-1	Inability to understand concepts	17.54	5.56
Reasons-2	Unawareness	7.89	5.97
Reasons-3	Poor intensity of learning	14.04	18.52
Reasons-4	Non adequate facilities at institutions	21.93	24.49
Reasons-5	Irregular teaching learning process	14.91	16.05
Reasons-6	Unfavorable home environment	6.14	5.35
Reasons-7	Improper study habits	5.26	4.94
Reasons-8	Peer group effects	3.51	3.29
Reasons-9	Internet and mobile phones distraction	3.51	3.29
Reasons-10	Low scientific aptitude	5.26	12.55



From the above analysis of table -3 it can be concluded that there is difficulties in conceptualisation life science concept in undergraduate students of Guru Ghasidas Vishwavidyalaya Bilaspur (C.G.) and undergraduate students of Atal Bihari Vajpayee university of Bilaspur (C.G) on concept- Flow cytometer in all the selected ten reasons but major difficulties were found in reasons – R-3,R-4,R-5.

Table-4: Difficulties in Conceptualising Life Science Concept Reason wise Percentage of Students On -Accessory reproductive organs

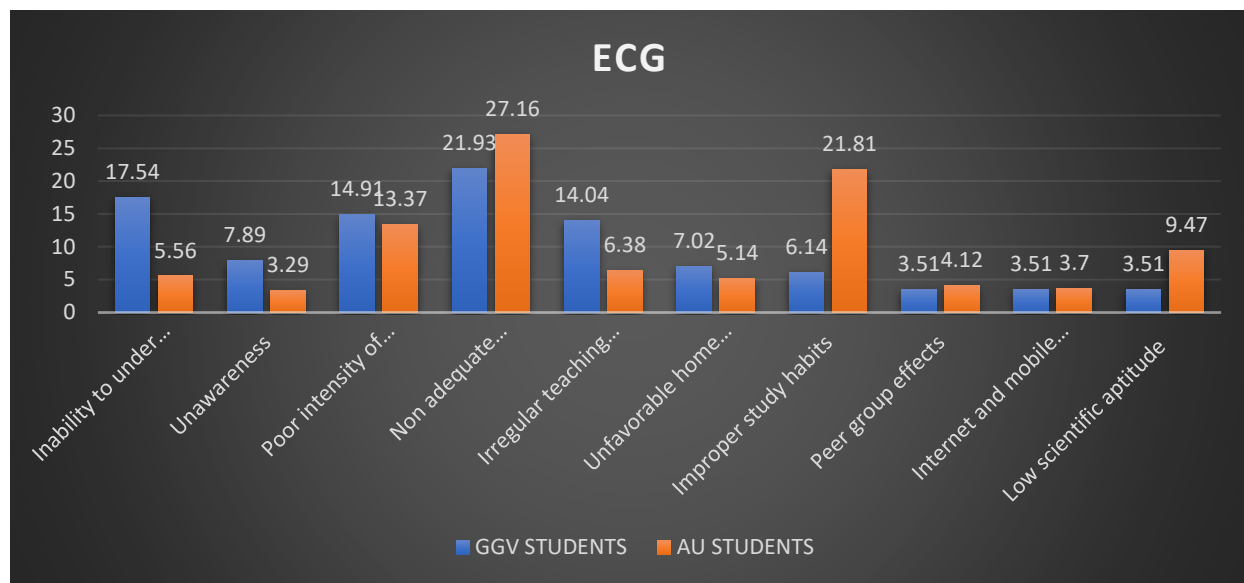
REASONS	STATEMENTS	GGV STUDENTS	AU STUDENTS
Reasons-1	Inability to understand concepts	7.89	4.12
Reasons-2	Unawareness	17.54	13.17
Reasons-3	Poor intensity of learning	5.26	5.56
Reasons-4	Non adequate facilities at institutions	3.51	2.88
Reasons-5	Irregular teaching learning process	21.93	22.84
Reasons-6	Unfavorable home environment	13.16	17.90
Reasons-7	Improper study habits	13.16	7.00
Reasons-8	Peer group effects	7.89	14.20
Reasons-9	Internet and mobile phones distraction	6.14	8.23
Reasons-10	Low scientific aptitude	3.51	4.12



From the above analysis of table -4 it can be concluded that there is difficulties in conceptualisation life science concept in undergraduate students of Guru Ghasidas Vishwavidyalaya Bilaspur (C.G.) and undergraduate students of Atal Bihari Vajpayee university of Bilaspur (C.G) on concept-*accessory reproductive organs* in all the selected ten reasons but major differences were found in – R-2, R-5, R -6.

Table-5: Difficulties in Conceptualising Life Science Concept Reason wise Percentage of Students On -ECG

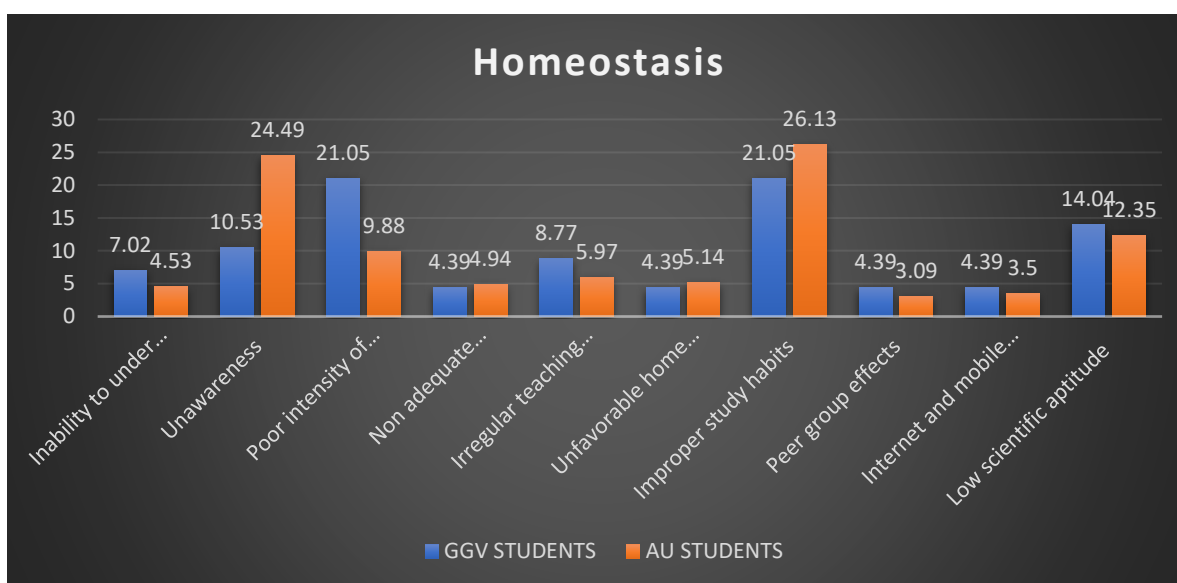
REASONS	STATEMENTS	GGV STUDENTS	AU STUDENTS
Reasons-1	Inability to understand concepts	17.54	5.56
Reasons-2	Unawareness	7.89	3.29
Reasons-3	Poor intensity of learning	14.91	13.37
Reasons-4	Non adequate facilities at institutions	21.93	27.16
Reasons-5	Irregular teaching learning process	14.04	6.38
Reasons-6	Unfavorable home environment	7.02	5.14
Reasons-7	Improper study habits	6.14	21.81
Reasons-8	Peer group effects	3.51	4.12
Reasons-9	Internet and mobile phones distraction	3.51	3.70
Reasons-10	Low scientific aptitude	3.51	9.47



From the above analysis of table -it can be concluded that there is difficulties in conceptualisation life science concept in undergraduate students of Guru Ghasidas Vishwavidyalaya Bilaspur (C.G.) and undergraduate students of Atal Bihari Vajpayee university of Bilaspur (C.G) on concept - *ECG* in all the selected ten reasons but major difficulties were found in reasons – R-3, R-4,R-7.

Table-6: Difficulties in Conceptualising Life Science Concept Reason wise Percentage of Students On -Homeostasis

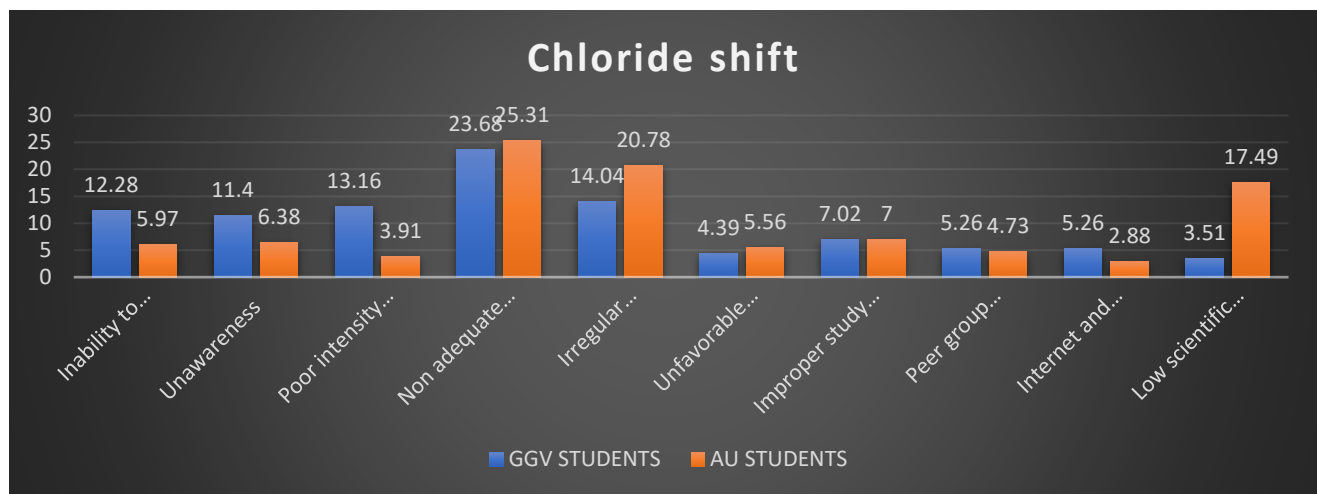
REASONS	STATEMENTS	GGV STUDENTS	AU STUDENTS
Reasons-1	Inability to understand concepts	7.02	4.53
Reasons-2	Unawareness	10.53	24.49
Reasons-3	Poor intensity of learning	21.05	9.88
Reasons-4	Non adequate facilities at institutions	4.39	4.94
Reasons-5	Irregular teaching learning process	8.77	5.97
Reasons-6	Unfavorable home environment	4.39	5.14
Reasons-7	Improper study habits	21.05	26.13
Reasons-8	Peer group effects	4.39	3.09
Reasons-9	Internet and mobile phones distraction	4.39	3.50
Reasons-10	Low scientific aptitude	14.04	12.35



From the above analysis of table -6 it can be concluded that there is difficulties in conceptualisation life science concept in undergraduate students of Guru Ghasidas Vishwavidyalaya Bilaspur (C.G.) and undergraduate students of Atal Bihari Vajpayee university of Bilaspur (C.G) on concept- *sphygmomanometer* in all the selected ten reasons but major difficulties were found in reasons – R-2,R-3,R-7.

Table-7: Difficulties in Conceptualising Life Science Concept Reason wise Percentage of Students On -Chloride shift

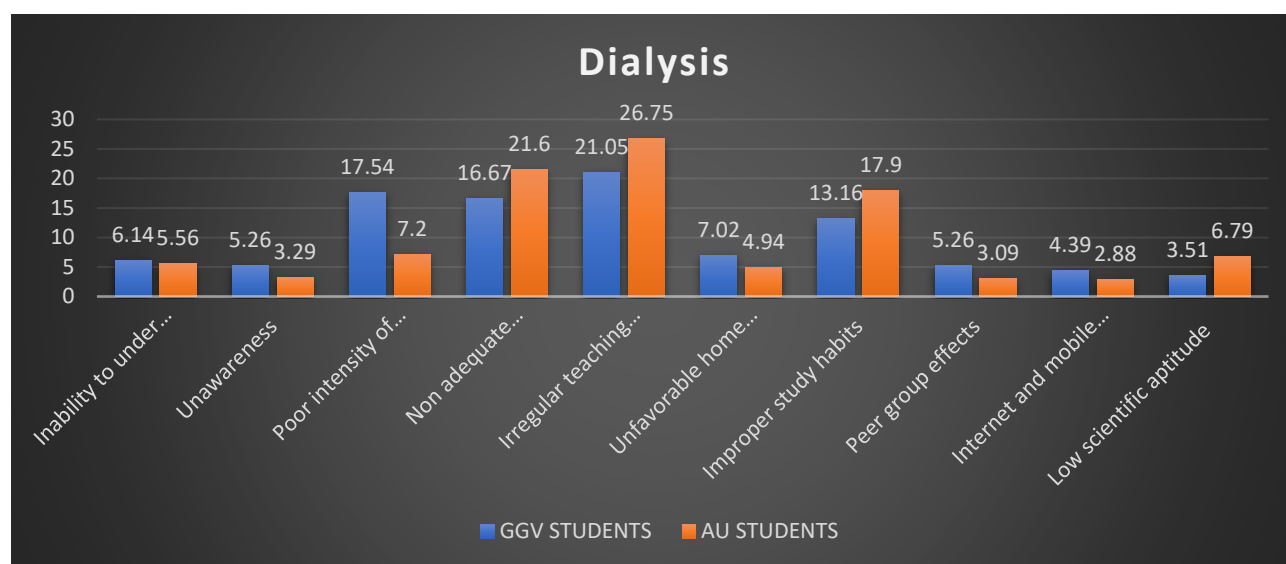
REASONS	STATEMENTS	GGV STUDENTS	AU STUDENTS
Reasons-1	Inability to understand concepts	12.28	5.97
Reasons-2	Unawareness	11.40	6.38
Reasons-3	Poor intensity of learning	13.16	3.91
Reasons-4	Non adequate facilities at institutions	23.68	25.31
Reasons-5	Irregular teaching learning process	14.04	20.78
Reasons-6	Unfavorable home environment	4.39	5.56
Reasons-7	Improper study habits	7.02	7.00
Reasons-8	Peer group effects	5.26	4.73
Reasons-9	Internet and mobile phones distraction	5.26	2.88
Reasons-10	Low scientific aptitude	3.51	17.49



From the above analysis of table -7 it can be concluded that there is difficulties in conceptualisation life science concept in undergraduate students of Guru Ghasidas Vishwavidyalaya Bilaspur (C.G.) and undergraduate students of Atal Bihari Vajpayee university of Bilaspur (C.G) on concept- *chloride shift* in all the selected ten reasons but major difficulties were found in reasons – R-4,R-5,R-10.

Table- 8: Difficulties in Conceptualising Life Science Concept Reason wise Percentage of Students On - Dialysis

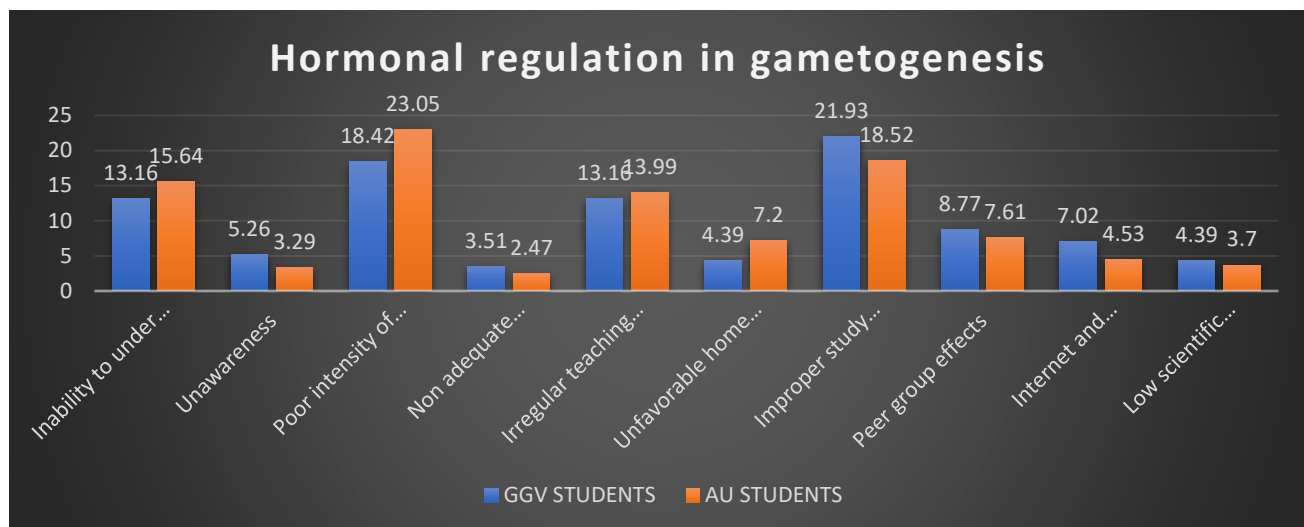
REASONS	STATEMENTS	GGV STUDENTS	AU STUDENTS
Reasons-1	Inability to understand concepts	6.14	5.56
Reasons-2	Unawareness	5.26	3.29
Reasons-3	Poor intensity of learning	17.54	7.20
Reasons-4	Non adequate facilities at institutions	16.67	21.60
Reasons-5	Irregular teaching learning process	21.05	26.75
Reasons-6	Unfavorable home environment	7.02	4.94
Reasons-7	Improper study habits	13.16	17.90
Reasons-8	Peer group effects	5.26	3.09
Reasons-9	Internet and mobile phones distraction	4.39	2.88
Reasons-10	Low scientific aptitude	3.51	6.79



From the above analysis of table -8 it can be concluded that there is difficulties in conceptualisation life science concept in undergraduate students of Guru Ghasidas Vishwavidyalaya Bilaspur (C.G.) and undergraduate students of Atal Bihari Vajpayee university of Bilaspur (C.G) on concept- *Dialysis* in all the selected ten reasons but major difficulties were found in reasons –R-4,R-5,R-7.

Table-9: Difficulties in Conceptualising Life Science Concept Reason wise Percentage of Students On -Hormonal regulation in gametogenesis

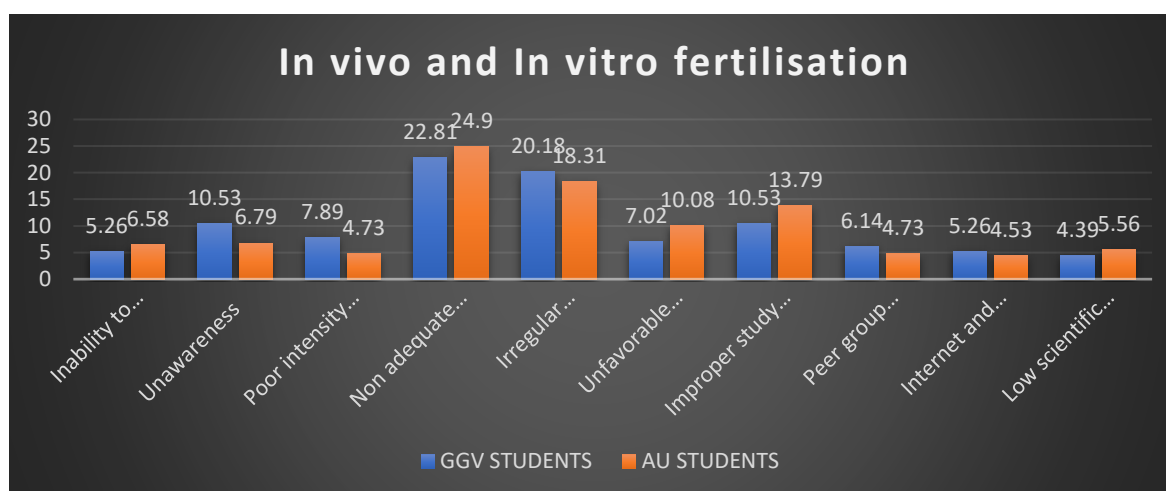
REASONS	STATEMENTS	GGV STUDENTS	AU STUDENTS
Reasons-1	Inability to understand concepts	13.16	15.64
Reasons-2	Unawareness	5.26	3.29
Reasons-3	Poor intensity of learning	18.42	23.05
Reasons-4	Non adequate facilities at institutions	3.51	2.47
Reasons-5	Irregular teaching learning process	13.16	13.99
Reasons-6	Unfavorable home environment	4.39	7.20
Reasons-7	Improper study habits	21.93	18.52
Reasons-8	Peer group effects	8.77	7.61
Reasons-9	Internet and mobile phones distraction	7.02	4.53
Reasons-10	Low scientific aptitude	4.39	3.70



From the above analysis of table -9 it can be concluded that there is difficulties in conceptualisation life science concept in undergraduate students of Guru Ghasidas Vishwavidyalaya Bilaspur (C.G.) and undergraduate students of Atal Bihari Vajpayee university of Bilaspur (C.G) on concept- *Hormonal regulation in gametogenesis* in all the selected ten reasons but major difficulties were found in reasons – R-1,R-3,R-5,R-7.

Table-10: Difficulties in Conceptualising Life Science Concept Reason wise Percentage of Students On -In vivo and In vitro fertilisation

REASONS	STATEMENTS	GGV STUDENTS	AU STUDENTS
Reasons-1	Inability to understand concepts	5.26	6.58
Reasons-2	Unawareness	10.53	6.79
Reasons-3	Poor intensity of learning	7.89	4.73
Reasons-4	Non adequate facilities at institutions	22.81	24.90
Reasons-5	Irregular teaching learning process	20.18	18.31
Reasons-6	Unfavorable home environment	7.02	10.08
Reasons-7	Improper study habits	10.53	13.79
Reasons-8	Peer group effects	6.14	4.73
Reasons-9	Internet and mobile phones distraction	5.26	4.53
Reasons-10	Low scientific aptitude	4.39	5.56



From the above analysis of table -it can be concluded that there is difficulties in conceptualisation life science concept in undergraduate students of Guru Ghasidas Vishwavidyalaya Bilaspur (C.G.) and undergraduate students of Atal Bihari Vajpayee university of Bilaspur (C.G) on concept - *In vivo and In vitro fertilisation* in all the selected ten reasons but major difficulties were found in reasons – R-4,R-5,R-7.

CONCLUSION

On the basis of the findings of the present study the researcher concluded that in selected 10 life science concepts the UG students of Chhattisgarh, India which have been selected from two universities Guru Ghasidas Vishwavidyalaya And Atal Bihari Vajpayee University regarding reasons behind difficulties in understanding life science concept- non adequate facilities at their institutions, Irregular teaching learning process and improper study habits are major reasons. As we know life science is a practical based subject many institutions don't have well equipped labs, smart class rooms and well spacious class rooms, because of this, students are not able to conduct concept based practicals, live demonstration of various processes and are not able to concentrate in class lectures so their concepts are not clear. Irregular teaching learning process and improper study habits are also reason of difficulty in understanding the selected 10 life science concepts. This may be due to the engagements of teachers in other administrative responsibilities in their respective institutions they do not able to teach each and every concepts with practical's in depth their main focus is to complete the syllabus anyhow so it's difficult to understand concepts easily ,Improper study habit is due to late college timings and after college most of the students have to go for coaching as they have to appear for competitive exams so they are unable to give enough time to revision and self-study many are busy with other house hold chores so not having any proper time table at home for studies which might be the reason of their difficulties in understanding the life science concepts.

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