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POEMS: A TOOL FOR AMALGAMATING CHEMISTRY WITH ARTS FOR EFFECTIVE LEARNING

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ABSTRACT

Teaching different branches of chemistry in class room is a Herculean task. Students with various backgrounds and mindsets are the biggest challenge every chemistry teacher faces. An integrated method of teaching like: talk and chalk, audio visuals, quizzes, puzzles, riddles, cartoons and poetry, improves learning abilities and covers wide band of student learners. At degree and post graduate levels, various emotional changes occurring in tender minds. By framing relevant poems, these emotions can be effectively utilized and channelized towards learning chemistry. A safer method is use clichés as currencies to barter knowledge in chemistry. Combination of arts with chemistry can spark up learning in young minds, leading to long term memory stamping. This paper presents few poems that correlate chemistry with emotions.

Key words: Arts, Chemistry, Psychomotor learning, Poems.

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1. INTRODUCTION

Many Indian universities providing three year degree in science courses have language papers in first four semesters, which are excluded in fifth and sixth semesters. These subjects are not considered for ranking criteria. Science students therefore, have a general mindset of neglecting language classes and concentrating only on science subjects. This trend has led to failure in expressing views and opinions of scientific lot. When they adopt career in teaching or research, delivering a simple topic in any particular language gets dearer. Lack in language presentation skills results in sharp increase in rate of plagiarism. Teaching chemistry without language is unimaginable. To imbibe classroom lectures on analytical, Inorganic, organic or physical chemistry, a student requires imaginary skills. A chemistry teacher needs to combine visual, aural, verbal, logical, social and solitary methods to deliver an effective lecture. Aural and verbal methods of communication are a must in teaching. Government initiatives to provide smart class rooms under RUSA funding have to some extent helped in visual

learning. Unfortunately our college, has only two such classrooms for science with greater than 900 student strength, thereby limiting its utilizing capacity. In absence of visual methods a teacher can resort to adding logical and social methods of imparting knowledge. Activities like quizzes, puzzles, anecdotes and riddles help in learning¹. Therefore these can be framed by the instructor and used as need be. Uses of drama/movies in learning have been adopted at various places,²⁻⁵ showing us that books are not the ultimate source of learning. This method enhances psychomotor skills and lays a huge impact on receptivity of brain. Alternatively, competitions can be organized among students to bring out new ideas of their own. A poetic teacher can further enrich the classroom learning, because there is no soul that detests songs. Dr. Sukarma Rani after completing her lectures has been encouraging her students to summarize their learning in the form of poems⁶. Araujo et al.⁷ experimented use of poetry and cartoons in learning about alkali metals. Their questionnaire survey voted highly for such strategy which improved constructive learning. Audrey et al. creatively incorporated poetry in mineralogy. Students commented that using poems made them not only understand but become more passionate about getting a job of as mineralogist⁸. Joao et al. in their research summarize importance of promoting socio-historical understanding for inculcating scientific literacy skills to meet requirements of modern world⁹. Innovative research in educating chemistry can be increased by coupling fine art work with poetry. Such methods help chemistry come alive on campus and provide aesthetic appeal 10 . Utilizing human emotions and their correlation to learn a subject leaves non erasable memory. This is the scope of the present paper.

2. METHODOLOGY

Present paper focuses on improving curricular learning through poems. These poems use clichéd emotions and appropriate photographs to convey the message effectively. Few illustrative poems are given in Table-1. Sample photographs Figure 1to 3 are provided alongside to help imagination.

No.	Title	Poem	Learning
1.00			outcome
1	Adhesion	I am unique and unlike you,	Adhesion,
		Cohesively form no bond.	Cohesion and
		Unknowingly, Adhesively,	their relation
		Blindly we share this song.	with gravity.
		Let us cling strong,	Nature of
		And stand, gravity's fall.	bonding between
		Proclaim our covalence, like	oxygen and
		Oxy-haem confluence.	haemoglobin
2	Brotherhood	Shared your toys, book and pen,	Carnot law in
		We played games frequently then.	thermodynamics
		Balls of rice, mud and all,	
		Jumped till my tooth did fall.	
		Pacifying those cats was an easy job,	
		We were equal shareholders of our small robs.	
		'Energy can't be 100 % converted without loss,'	
		You taught me all those Carnot laws.	
		Bro let's re live childhood	
3	Ammoniating	Like sodium in ammonia,	Ammonia and

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Table 1 Forms with rearining outcome

		My soul merges in you.	sodium form
		I am all electrons,	blue colored
		Now colored with blue.	strongly reducing
		Bring forth those unsaturation's,	solution
		I will reduce you.	
		I boom with fire on water,	
		Separated from you.	
		Come let us redox together.	
4	Autograph	Your autograph on my heart,	Longevity of
		Tattooed indelibly.	indelible ink
		Thousands may come,	used in tattoos
		And a thousand may go.	
		Nothing matters me.	
5	Bonding	It requires orbitals to be vacant,	Bonding is
		And energies to be spent.	driven by force
		Bringing two dissimilar atoms together,	to attain stability.
		Happens, when stability it attains.	Difference
		If you aren't empty,	between strong
		Bonding hardly occurs.	and weak bonds.
		Thirst to be filled,	
		Since big boom drives this universe.	
		Noble like gold? Go on!	
		Else bind like cyanide to iron.	
6	Distilling life	Life heats, boils and	Azeotropic
		Gives you no option.	mixtures,
		That's when you distill as pure solvent	universal solvent
		And not a solution.	and distillation
		I have done my boiling,	criteria.
		am not azeotropic,	
		Don't get me wrong,	
		I'm not universal.	
		I'm done with solutes,	
		No more solutioning.	
	1-1-1-1		
	10 C 12 (14 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
	Figure 1:		
	Distillation unit		
7	Recrystallize new	Many people I daily meet,	Criteria for
		Few I teach and others me teach.	recrystallization
		With age experience saturate,	and possible
	CALCULATION OF THE PARTY OF THE	Emerging crystals rare and great.	defects in
		Very dilute solutions/relations nothing does	crystals.
		hold,	
		Fight for heart's nude connections,	
	State Bull	With no void spaces or defects untold.	
	Contraction of the local distance		
	Figure 2: Flak with		
	crystals		

8	Light	Few welcome me with prisms,	Properties of
	•	I disperse to colour their lives.	electromagnetic
		Few more bend and refract me,	radiation and its
		Suiting their medium to rejoice.	interaction with
	1110an	Some have sharp edges and grate me,	matter.
		Molding me as per choice.	
		In dark few sit and absorb me, wise?	
	103 30 3	There are a few, who bounce me,	
	100 . 15 . 55	Reflecting all I give.	
		I disperse, refract monochromate and get	
	Figure 3: lamp	absorbed.	
		Alas! When reflection is all I see,	
		Slowly pack up, retrace my path.	
		Console my heart and say,	
		You are too polished and slippery,	
		I am wild, untamed,	
		You don't deserve me.	

3. SCOPE AND CONCLUSION

On combining Arts with a difficult subject like chemistry, understanding level increases. It can however be improved by involving students to write small projects with crosswords and cartoons. Only drawback in these poems is that, a non -science student may find grasping them impossible. A survey after implementing such an activity can boost the effectiveness of such methods in Graduate and Post Graduate studies.

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