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CONTINUOUS AND COMPREHENSIVE EVALUATION: A BIRDS EYE VIEW

Hatakeswar Senapati

TRODUCTION:

of us are aware of the term 'evaluation'. hough the term is used in many areas of nan operation, one finds its use more uently in educational settings. The core of form of educational activities organized in mal set up like, school, college or university caused student learning. To ensure that ent learning occurs, a teacher plans the uction, organizes or executes the ctional/ learning experiences and at the end ates to see whether the instruction has ted in student learning. Evaluation is arily associated with ensuring the rence of student learning. But, contrary general belief that evaluation is a session-tivity, it is a continuous activity that is in-to the instructional system.

INUOUS AND COMPREHENSIVE UATION: THE CONCEPT

ious and comprehensive evaluation is an ch that aims at assessing those attributes annot be assessed trough one-attempt examinations. It also aims at making the regular in studies. It provides enough and scope for promoting and assessing d development of the child on a us basis which is not possible though ional evaluation system which is going schools.

ous and comprehensive evaluation a particular process of evaluation which is school based and aims at all development of students. This process in continuity of testing with reasonable inte and covering different aspects of curricul co-curricular areas and activities. These mainly cover cognitive, affective psychomotor domains of behavior of learners.

Continuous and Comprehensive Evaluatio three key words. The term continuous r to continuity and regularity of assessment d the whole session. The frequency of clas unit test and terminal test can make evaluation regular. The test may be follo by the diagnosis of hard spots of learners remedial interventions to correct them. Rete and getting the feedback may help the teac and learners for their self-evaluation. Bes periodicity of tests, the continuity of evaluation can be achieved by mak evaluation as an integral part of teaching-lear process. This continuity can be made fea by employing both formal and informal meth of assessment. It may be pertinent to add the traditional system hardly adheres to concept of regularity of testing and contin assessment. The second key word comprehensive. The second key word comprehensive. This refers to the area assessment which includes both scholastic co-scholastic aspects of pupils growth he the all round development of the chi scholastic aspect cognitive growth in su

ORIGINAL RESEARCH PAPER

Education

AWARENESS AND ATTITUDE OF ELEMENTARY SCHOOL TEACHERS TOWARDS CONTINUOUS AND COMPREHENSIVE EVALUATION

KEY WORDS: Injection butorphanol, post-operative analgesia, Haemodynamics;; Opioids

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1.1 RATIONALE FOR THE STUDY:

Continuous and comprehensive Evaluation can be effectively implemented when all the stake-holders, particularly the teachers concerned with children realize its importance in the regular teaching-learning process. The implementation of CCE without raising awareness and appreciation may not deliver the desired goods. The success of any new educational programme is predicated upon teachers' knowledge and expertise to work out it at their level. With the introduction of CCE, the teacher's role has been increased. The success of CCE depends on the performance of the teachers and awareness and attitude are the major behavioural factors that contribute to the performance. In this context certain questions come to mind. These questions include:

a. To what extent the elementary teachers, the field level operator, have the knowledge and understanding of the concept of CCE?
b. Whether these teachers have favourable or unfavourable attitude towards CCE?

For finding the answer to these questions a study of this kind is essential.

1.2 STATEMENT OF THE PROBLEM

The rationale for the study has been discussed. The review of related studies shows that a very few studies have been undertaken in this area. This area, as an area of research, needs more attention and discussion through systematic research. So the present study can be exactly stated as:

“AWARENESS AND ATTITUDE OF ELEMENTARY SCHOOL TEACHERS TOWARDS CONTINUOUS AND COMPREHENSIVE EVALUATION”.

1.3 OBJECTIVES OF THE STUDY:

The study has been undertaken with the following objectives:

1.3. 1To study the level of awareness about CCE of the elementary school teachers with respect to gender, location of school, management structure of school and teaching experience.
1.3. 2To compare the awareness of elementary school teachers about CCE with respect to gender, location of school, management structure of school and teaching experience.
1.3. 3To study the level of attitude of elementary school teachers towards CCE with respect to gender, location of School, management structure of school and teaching experience.
1.3. 4To compare the attitude of elementary school teachers towards CCE(dimension-wise and total) with respect to gender, location of school, management structure of school and teaching experience.
1.3. 5To find out the relationship between awareness about CCE and elementary teacher's attitude towards CCE (dimensions – wise and total)

1.4. HYPOTHESES OF THE STUDY

Keeping in view the objectives of the study, the following null hypotheses are formulated:

1.4. 1There exists no significant difference in the awareness about CCE of :

(a) Male and female elementary school teachers;
(b) Elementary teachers working in schools of urban and rural areas;
(c) Elementary teachers working in government and private schools;
(d) Elementary teachers having more and less teaching experience .

1.4.2 There exists no significant difference in the attitude of towards CCE of;

- Male and female elementary school teachers; and
- Elementary teachers working in schools of urban and rural areas;
- Elementary teachers working in government and private schools;

Elementary teachers having more and less teaching experience .

1.4.3 There exists no significant positive correlation, between the sample teacher's awareness about CCE and their attitude towards CCE;

1.5. STRATEGY OF INVESTIGATION.

1.5.1 Method of the study.

The present study has been planned and implemented under Descriptive survey method.

1.5.2. SAMPLE

The major focus of the investigation was to study and compare the awareness about CCE and attitude towards CCE of elementary teachers of Khordha district with reference to gender, location of the school, school management typology and teaching experience. For the purpose a sample of 400 elementary teachers (i.e.Male-220, Female– 180; Urban- 230, Rural– 170; Government- 250, Private- 150 and more experienced – 250, less experienced – 150) was drawn from 05 Blocks of Khordha District.

1.5.3 Tools Used.

The following tools have been used to collect required data for analysis.

1.5.3.1 Awareness Test on CCE developed by the (Investigator).
1.5.3.2 Teachers Attitude Scale towards CCE (Self-developed).

1.6 DATA ANALYSIS.

The data collected by using the aforesaid tools from the sample teachers were analysed by employing percentages, t-test and product moment Correlation (Pearson an method).

Values of Skewness (SK) and Kurtosis (Ku) of Awareness about CCE and Attitude towards CCE(Dimension-wise and total)

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Kinetics and Mechanism of Electroless Deposition of Silver From an Aqueous Bath

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This paper describes experimental investigations on electroless deposition of silver from an aqueous bath containing $AgNO_3$ and N_2H_4 as the precursor for silver and the reductant, respectively. The kinetics and mechanism of the electrochemical oxidation and reduction processes are studied through the partial polarization plots using the concept of mixed potential theory. Behaviors of cathodic and anodic equilibrium potentials were determined with respect to $[Ag^+]$ and $[N_2H_4]$, respectively. Thermodynamic expressions for the mixed potential E_m and kinetic expressions for the mixed current i_m were derived by considering specific segments in superimposed cathodic and anodic partial polarization curves and from it to understand the mechanism of the process.
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Due to antibacterial activity,[1–7] high hardness, low coefficient of friction, high reflectivity and high resistivity[8–10] of silver, silver plated polymers have gained increasing application in the field of medicine,[11,12] opto-electronic devices,[13–17] as well as for decoration purposes. Silver plating can be electrolytic or electroless in case of the later, as no electric current is required, there is an equal probability of plating on the area of substrate exposed to the bath leading to uniform plating. Therefore, a number of studies are reported on electroless deposition of silver.[18–26]

An electroless plating is basically an electrochemical process combining cathodic- and anodic-half reactions together.[27] Thus, electroless silver plating using ammonia as complexing agent and hydrazine as reducing agent occurs as per the following reactions:

Overall reaction;

$$4\left[Ag(NH_3)_2\right]^+ + N_2H_4 + 4OH^- \rightarrow 4Ag^0 + 8NH_3 + N_2 + 4H_2O \quad [1]$$

Cathodic reduction reaction;

$$4 \times \left[\left[Ag(NH_3)_2\right]^+ + e^- \rightarrow Ag^0 + 2NH_3\right] \quad [1a]$$

Anodic oxidation reaction;

$$N_2H_4 + 4OH^- \rightarrow N_2 + 4H_2O + 4e^- \quad [1b]$$

Many researchers have studied the mechanism of electroless plating by using simultaneously occurring but interdependent cathodic metal deposition and anodic oxidation of reductant in an electroless process.[28–31] Though the usefulness of partial polarization curves[32–34] to derive the kinetic equation[35–38] are studied by many researchers still there remains many areas to be explored so as to give a better insight to mechanistic details. There are reports using mixed potential theory on kinetics and mechanism of copper electroless deposition,[39–41] dissolution processes,[36,42–44] electrochemical precipitation process,[45] other oxidation[27] and leaching process.[46,47] However, there is no such reported work in the field of electroless silver deposition. Depending on the concentration of reacting species and reaction parameters, the mixed potential may be positioned in the linear, Tafel or limiting current region of the curves, which gives an idea about the reaction mechanism i.e. whether the reaction is under anodic or cathodic control or under mixed control.[36] An attempt has been made in this paper to explain mechanistic details of electroless silver deposition reaction by using mixed potential theory of Wagner & Traud,[48–52] Nernst diffusion equation,[53] and Butler - Volmer equation.[33,34] Both oxidation half cell reaction as well as reduction half cell reaction at various reaction conditions has been used for this purpose.

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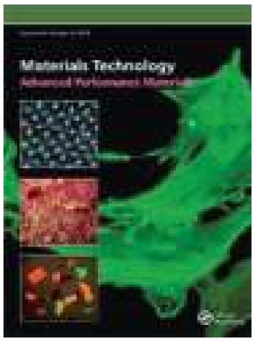
Experimental

Materials.—Polyurethane catheter substrate with an area of 10 × 2.5 cm² and a thickness of 0.3 cm were used in electroless silver plating experiments. Out of the whole substrate only 5 cm² surface area has been exposed for pretreatment and plating. The substrates used in the process were supplied by Vaishnoma urethane (Hyderabad, India). The silver working electrode for electrochemical study was procured from Arora-Matthey Limited (Kolkata, India) with purity to the level of 99.99%. Acetone (Merck 100%) was used to degrease the substrate and electrode surface and high vacuum desiccator (Tarson, India) was used to preserve the substrates after drying in a hot air oven (Sun scientific industries, India). The mixed solution of chromic acid (Merck 99%) and sulfuric acid (Merck 98%) was used for etching of the surface where as for sensitization stannous chloride (Merck 97%), hydrochloric acid (Merck 35%) and palladium chloride (Merck 58.5%) was used to catalyze the substrate surface. Electroless silver bath was prepared which consisted of high purity analytical grade chemicals such as silver nitrate (Merck 99%) as precursor, ammonia solution (Merck 25%) as complexing agent, 3,5-diiodotyrosine (Sigma Aldrich 98%) as surface active agent, and hydrazine hydrate (Merck 99%) as reducing agent. Acetic acid (Merck 99.8%) was used to maintain the pH of the solution using a digital pH meter (Systronic 335, India). The analytical balance used for solution preparation and gravimetric study was of Sartorius BS 224, Germany. All electrochemical studies were carried out using potentiostat (Ametek, Parstat 4000, USA). During the study variable resistance box (RDB6, India) was used to control current in the dual cell and digital multimeters (Picotest M3510A, Taiwan) were used for the measurement of current, cathode potential and anode potential. All measurements were made in stirring conditions using a stirrer (Tarson PT1000, India).

Substrate and electrode preparation.—All substrates were washed with distilled water followed by acetone and stored in the high vacuum desiccator before use. The substrate's surface was etched with chromic - sulfuric acid in 1:1 at 50°C for 15 min followed by washing with distilled water. The etched substrate was then sensitized and catalyzed using acidified stannous chloride and acidified palladium chloride respectively at ambient temperature for 15 min followed by washing with distilled water.

Similarly the working Ag electrode of 1 cm² prior to its use was cleaned using 4/0 emery cloth, washed with distilled water and dried in acetone. The smooth and polished surface of the electrode was then dipped into 1% aqua regia for 1 min. It was then made to go through sensitization process for 5 min using acidified stannous chloride solution and was finally activated using acidified palladium chloride for



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Correlation of particles size with mixed current (i_m) in electroless deposition of nano silver metal onto polyurethane catheter surface

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TECHNICAL PAPER

The Effect of Bath Parameters on the Electrocrystallisation of Co_x–Cu_{100-x} Alloys on Stainless Steel Cathode

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Abstract The electrocrystallisation of the alloys of Co_x–Cu_{100-x} onto stainless steel cathode was investigated by performing cyclic voltammetry (CV) to understand the mechanism of deposition. The deposit morphology and crystal structure of deposit were analysed using scanning electron microscopy (SEM) and X-ray diffraction (XRD), respectively. The kinetic parameters were obtained from the cathodic polarisation of the CV to predict the electron transfer mechanism in the process. The transfer coefficient value (α) of the kinetic parameter revealed that both cathodic and anodic processes were unsymmetrical. It was demonstrated that the current efficiency of the deposit increased from 96.8% at pH 4.0 to 99.2% at pH 7, and then it dropped to 89.7% at pH 8. Before the deposition of the Co–Cu alloy, the initial copper deposition occurred at − 0.24 V and peaked at − 0.66 V. This was followed by the deposition of the Co–Cu alloy at − 1.04 V, which occurred after the deposition potential of Cu^{2+} (− 0.24 V) and Co^{2+} (− 0.89 V). The current then increasesd with a small increment in applied potential due to subsequent diffusion-controlled copper reduction along with the co-deposition of Co. The variation in the kinetic parameters was also reflected in the current efficiencies, the deposit morphologies, the crystallographic orientations and the nucleation overpotential values. The percentage of cobalt content in the alloy was observed to decrease in at.% from 54.35% at pH 4 to 49.86% at pH 6 and further to 20.62% at pH 8. The structure of the deposited alloy confirmed the formation of a single solid solution phase having different planes such as (222), (311), (220), (200) and a sharp peak due to face-centred cubic structure with (111) plane. This strong peak along with other similar peaks were observed in all the XRD of the deposit obtained at pH 4, 6 and 8. The morphology of the deposit characterised by the SEM showed that the deposit changed from a bitter gourd to a regular cauliflower-like structure as the pH value changed from 4 to 8.

Keywords Electrocrystallisation · Current efficiency · Cathode potential · Co_x–Cu_{100-x} alloys

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1 Introduction

The Co–Cu alloys deposited on the copper, platinum and indium tin oxide (ITO) substrates exhibit unusual physical, magnetic and mechanical properties, and therefore, they are useful in data storage systems and sensor technology and as magneto-resistive materials [1–4]. These applications are based on the significant magneto-resistant properties present in these Co–Cu alloys that promote a great difference in electrical resistance in an external magnetic field. However, these type of properties can only be noticed in a meta-stable single solid solution that contains few cobalt ions in a copper matrix, which forms a granular alloy. Such alloys can also be used for catalysis [5, 6] as well as an anticorrosive coating on steel [7].

The equilibrium phase diagram reveals that the Co–Cu systems does not show any virtual solubility [8] of cobalt in copper or copper in cobalt below 500 °C. It is difficult, therefore, to produce a solid solution through the

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