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VISION

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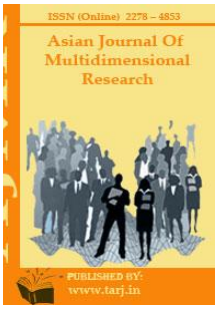

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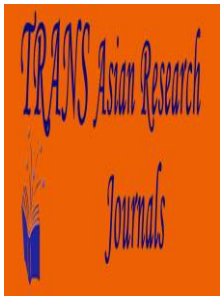

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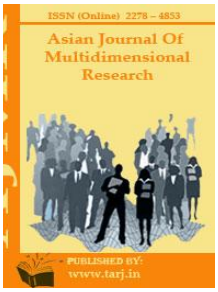

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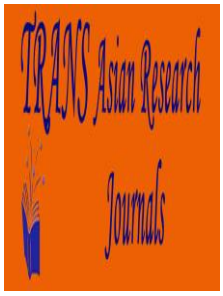

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RELIABILITY FOR REQUIREMENTS MEASUREMENT IN MULTI-UTILITY VEHICLE SEGMENT IN INDIA

Agawane Rajendra Jagannath*; Dr. Bhola Sarang Shankar**

*Assistant Professor,
Karmaveer Bhaurao Patil Institute of Management Studies and Research,
Satara, Maharashtra, INDIA
Email id: rajagawane@gmail.com

**Associate Professor,
Karmaveer Bhaurao Patil Institute of Management Studies and Research,
Satara, Maharashtra, INDIA
Email id: sarangbhola@gmail.com

ABSTRACT

Purpose: This study aimed to examine the reliability and validity of data collection instrument prepared to sought the requirement and expectation behaviour of owners' of Multi-Utility (MUV/MPV-Multi Utility/ Multi-purpose vehicle) vehicle segment and other-(Hatchback, Sedan, Mini-van, and Mid-size) vehicle segment owners' towards vehicle design and service variables. Methods: A convenient sample of 400 Multi-Utility (MUV/MPV-Multi Utility/ Multi-purpose vehicle) owners' and 60 other-(Hatchback, Sedan, Mini-van, and Mid-size) vehicle segment owners' is applied to measure instrument performance. Results: The instrument measured cronbach's alpha for requirement on importance from 0.74 to 0.69. Cronbach's alpha for expectation on agreement ranged from 0.71 to 0.65. Conclusion: The study provided psychometric evidence for the application of variables based on importance and agreement by the owners' of the vehicles.

KEYWORDS: *Reliability; Expectations; MUV/MPV Vehicle; Instrument; Scales; Variables.*

INTRODUCTION

Measuring and reliability of consumer opinions paves the way for organization's to venture into product development and service improvements with confidence and surety. Keeping pace with changing opinions, satisfaction levels and motives, makes companies to be on their heels. Vehicle industry is fast changing considering environmental, social, economic and global accommodations. Expectation and perception scales for product variables have been at the

forefront to assess product usage and service experience. Researchers, marketers and academicians over a period have questioned the use of instruments used specifically in survey based research. Making extremely reliable and valid has become the corner stone to stand alone and justify the research or study conducted. Different industries and services require different scales to be used depending upon what exactly research wants to focus upon.

This study is conducted considering the aspects of reliability and validity in finding MUV/MPV expectations from the owners' who use the vehicles currently, and also consumer the after sales service from the service dealers.

Overall vehicle dependability in India is average 189 problems per 100 vehicles in 2017, down from 185 per 100 in 2016. A lower number of occurrences of problems reflect higher longer-term vehicle quality. Owner reported problems have risen sharply after vehicle being driven above 40000 kms. The owners also reported the average of 73 more problems per 100 vehicles than those driven less than 40000 kms. Vehicle exterior and driving experience account for more problems than other categories including uneven tire wear, noise form doors, bumper and exterior corrosion, which are more prevalent that are driven more than 40000 kms. In addition to this after about three years ownership, problems related to squeaks and rattles are reported, which affects the build quality perceptions from the manufacturers point of view. Auto makers that are able to identify such problems are likely to be able to provide a more positive ownership experience for their customers'. (httpwww.jdpower.com/about-us/press-release-info, 2017). Automakers, for example, Maruti Suzuki, Tata Motors, Toyota, Nissan and Ford intend to dispatch new models in MPV and Mini MPV segment in India. The challenge for deals volumes and estimating referred to motivations to step – up interest in this section, which is unexplored and prone to fuel the activity in coming days. Scaled down MPVs are individual transporters taking after smaller vans with better inside room. Makers would like to give them car like feeling, making it 7-8 seaters and estimating it aggressively to build the volume of offers. Families expect better fuel efficiency with better-featured vehicle. Concerning the MPV, SUV segment, market was dependably there, yet with constrained alternatives, which automakers are currently investigating through market considers. (Philip L. , 2010).

A Multi-Purpose Vehicle (MPV) does precisely what it embarks to do: conveys a family in as much solace as a normal car has the space to equal an expansive SUV and is similarly as viable as the family hatchback. To put it plainly, the MPV has turned out to be well known basically because of the way that they are an incredible incentive to the normal value touchy Indian purchaser. (India Brand Equity Foundation, Automotive Market and Opportunities, Gurgaon, 2007.)

2. THEORETICAL BACKGROUND

Reliability and validity of the behavioral regulation in exercise questionnaire-2 for nursing home residents in China shows a good fit for the confimatory factor analysis instrument used was consistent, reliability of the instrument was tested which was in standard range, test-retest valued at .84 and the subscales ranged from .75 to .89, supporting stability of the instrument. Psychometric evidence was thus established for the instrument to measure the application among nursing home residents in China. (Lei Liu, 2020). To report the development, the reliability and validity of the Chinese children physical activity questionnaire (CCPAQ), a study conducted to assess the measurement scales used, which showed reliability coefficient from 0.63-0.93, spearman's correlation coefficient for validity on time spent on total physical activity and

sedentary behaviour were all 0.32, energy for physical activity relatively low correlation with the accelerometer (rho=0.20, p=0.040, rho=0.19, p=0.054), showing (CCPAQ) promising and feasible method to assess physical activity pattern in children. (YANG Xi, 2019). Preference and satisfaction questionnaire (PSQ) was utilized and found to be valid and reliable measure to assess paitent preference and satisfaction with a weekly oral tablet and 6-month subcutaneous injection for postmenopausal bone loss in America. (Deborah T. Gold, 2011). Study focused on cognitive functions reflection by questionnaires was conducted with 217 participants completing battery of widely used questionnaires and performing naturalistic tasks invovlving imagination, autobiographical memory, future thinking and navigation. Imagination and navigation questionnaires reflected performance on their related tasks. Memory questionnaires were associated with autobiographical memory vividness and future thinking than the questionnaires purporting to reflect these functions. Intial exploratory analyses suggest broad profile of information can be obtained efficiently using a small number of simple single questions, and can be modeled task performance comparably to established questionnaires in young, healthy adults. (Ian A. Clark, 2020). Psychometric properties of the Brazilian versions of the FAQLQ-PF and the FAQL-PB tools showed good validity, reliability and reproducibility, being considered adequate to be used with parents of Brazilian children with food allergy. (Raquel Bicudo Mendonc, 2019). Pschometrically rigorous instrument is developed to assess patients' perceptions of the quality of preparation for medical interventions using Miprep survey. It shows the Miprep survey used in medical field can be used as quality assurance tool to identify areas of improvement and areas of excellence in paitents' preparation. Face and content validity were demonstrated, exploratory factor analysis was adopted. Reliability is evidenced by adequate internal consistency. (Kristy L. Fakes, 2019).

A systematic and critical appraise of self-report survey instruments measureing woman's experiences of their maternity care was done through review. Methodological and psychometric quality of the instruments is lacking. Many papers reviewed lacked the methodological and psychometric quality. (Claire Beecher, 2019). Initial scale is developed to evaluate sustainable innovation performance model obtained by evaluating each item in terms of components which can be used by companies to evaluate sustainable product or process innovativeness. (E. Calik, 2016).

Portuguese study on work satisfaction with job life scale (SWJLS) by combining procedures of the classical test theory and item response theory to validate psychometric properties of the scales used. Internal structure of the scale, reliability, correlations with other measures of wellbeing at work were estimated and scale waqs were tested for gender measurement invariance. (Tomas Caycho-Rodríguez, 2020). Rasch Model is used to revalidation of the instrument construct validity. Which exhibited; fit the model, meaning single dimension is able to measure the intended by the construct theory. Further showing consistency and higher reliability coefficient, confirming robustness and validity of the instrument that can be applied in investigation of personality traits on work-family conflict in working women in Malaysia. (Nurhazirah Hashim, 2012). Scales used to measure brand equity exhibit reliability and validity. Convergent validity is proven between Yoo and Donthu's scale. The scale validation is confirmed under the study. (Hananto, 2013). Consumers' give importance to variety in buying and enjoy joining coaliation based loyalty programmes provided by companies. Which means longing for new aspects and innovation in product or service they use. This is complex from manufacturing perspective to retain consumer for your product or service. Which further results

in design complications for products like vehicles which are combination of sub-systems to work in coordination as expected by consumers. (Pratima Sheorey, 2014).

3. METHODOLOGY

Study design

This inter-segment survey was designed to validate the reliability and validity adequacy of importance and agreement scale for conducting research in measuring the requirement and expectations while using the vehicle and experiencing the service from the service dealer.

Sample setting and selection

Study was conducted in Satara district, State of Maharashtra, India from the February 2015 to December 2017. The focus of the study was to identify vehicle design and service expectations, in particular MUV/MPV segment vehicles. The customers who have purchased the vehicles in this segment category comprised of the samples. This was done through open market survey through referencing from one customer to other. The data was collected from 400 vehicle owners' in the MUV/MPV category of 42099 taken from Motor Transport Statistics of Maharashtra (RTO) and 60 owners of (Hatchback, Sedan, Mini-van, and Mid-size) vehicle segment. Sample selection is using convenient sampling method. The sample size was calculated using 'Yamane and Taro's' formula for finite population. The data collection was done through structured schedule. Same schedule was executed on two different vehicle category segment owners. Schedule was pretested on 50 samples within MUV/MPV category for content measurement to ensure valid, clear and appropriate measurements. 'Statistical Package for Social Sciences' was used to analyze the data.

Variables utilized and arrived at based on literature survey done for the study. Basic variables for design consideration irrespective of vehicle segment in broad category considered are; 'vehicle comfort attributes', vehicle safety attributes', 'vehicle exteriors', and 'other important aspects', for service variables consideration it is 'initiating the service visit', 'service advisor attributes', 'service facility', and 'service quality' gauged by service consumers'.

Instrument:

Structured schedule is prepared to collect primary data from existing customers who own these segments of vehicles*; importance rating is taken on 1-10 scale, viz. 1-5 not important, 6-8 slightly important, 9 important, 10 extremely important, agreement rating is 4 strongly agree, 3 agree, 2 disagree, and 1 strongly disagree.* The schedule has following structures;

1. First three question structured with the name and brand of vehicle owned, whether first buy of vehicle or second, if second which brand of vehicle owned.
2. From fourth question onward, the instrument is structured A1 for comfort and convenience in the vehicle which is gathered on importance rating of 1-10, followed by next column of agreement rating on 1-4 scale.
3. A2 structured for safety and security of the vehicle which is gathered on importance rating of 1-10, followed by next column of agreement rating on 1-4 scale.
4. A3 structured for exteriors of the vehicle which is gathered on importance rating of 1-10, followed by next column of agreement rating on 1-4 scale.
5. A4 structured for other important aspects of the vehicle which is gathered on importance rating of 1-10, followed by next column of agreement rating on 1-4 scale.

6. A5 structured on loyalty and advocacy of the vehicle in future and advocacy to friends and relatives on 1-4 scale.
7. Structure for service quality of present vehicle center and ideal service center is gathered on scale of agreement on 1-4, and importance rating of 1-10 for service variables, which is further structured as;
8. B1 structured for initiating the service visit which is gathered on importance rating of 1-10, followed by next column of agreement rating on 1-4 scale, for current vehicle service center and next column of ideal service center consisting of four questions for rating about service in this segment.
9. B2 structured for service advisor which is gathered on importance rating of 1-10, followed by next column of agreement rating on 1-4 scale, for current vehicle service center and next column of ideal service center consisting of four questions for rating about service in this segment.
10. B3 structured for service facility which is gathered on importance rating of 1-10, followed by next column of agreement rating on 1-4 scale, for current vehicle service center and next column of ideal service center consisting of four questions for rating about service in this segment.
11. B4 structured for service quality which is gathered on importance rating of 1-10, followed by next column of agreement rating on 1-4 scale, for current vehicle service center and next column of ideal service center consisting of five questions for rating about service in this segment.
12. B5 structured on loyalty and advocacy of the current service center in future and advocacy to friends and relatives on 1-4 scale and agreement scales having seven questions in total.
13. Lastly instrument is structured for demographic data collection on household position of the respondent, gender, marital status, age, occupation, completed education, and monthly household income of the respondent from C1-C8.

Data collection:

Data was collected with face-to-face interviews using the self-designed questionnaire and was carried by self, friends, relatives and referred contacts. The structure of the questionnaire was in local Marathi language, so the instructions to fill up were easily understandable and executable for the samples. Standard instruction and contact number was forwarded in case their was difficulty in filling or understanding the questions asked.

4. RESULTS AND DISCUSSION

The first design part consists of vehicle attributes importance on scale 1-10. Second part consisted of attributes agreement ratings for same vehicle attributes present in current vehicle they use; on scale of 1-4.

The following tables show the ‘Cronbach’s Alpha’ values for each variable assessed for ratings against importance assigned by the owners’ of the vehicle under four categories of; ‘vehicle comfort attributes’, vehicle safety attributes’, ‘vehicle exteriors’, and ‘other important aspects’ gauged before buying.

TABLE 1. 'RELIABILITY STATISTICS' FOR VARIABLES USED TO ASSESS IMPORTANCE ITEM-TOTAL STATISTIC (N=460)

Sr.	Vehicle Comfort Attributes	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1.	AC/AV	42.09	9.317	.431	.727
2.	Mirrors, PW.	42.39	8.701	.583	.687
3.	Interior Space	42.64	8.400	.507	.708
4.	Reclining Seats	42.39	8.836	.535	.700
5.	Height Adj. Seats	42.34	8.800	.520	.703
6.	Overall Comfort	41.76	9.394	.362	.747
Sr.	**Vehicle Safety Attributes**				
1.	Side impact beams	42.41	10.329	.458	.757
2.	braking systems	42.52	9.880	.598	.720
3.	Tyres	42.70	9.574	.608	.717
4.	Airbags	42.55	10.536	.467	.753
5.	Child proof windows	42.50	10.386	.559	.732
6.	Overall Safe	41.99	10.823	.435	.761
Sr.	**Vehicle Exteriors**				
1.	Aerodynamic body	17.02	2.456	.499	.742
2.	Body coloured ORVM	17.01	2.113	.704	.485
3.	Overall design	16.89	2.721	.516	.715
Sr.	**Other Aspects of Vehicle**				
1.	Brand is established	25.14	3.443	.243	.460
2.	lower running cost	25.22	2.874	.371	.337
3.	TV, radio, newspaper	25.45	3.150	.332	.380
4.	Recommendation	25.31	3.435	.210	.491

Source: (Compiled by researcher)

TABLE 2. 'CRONBACH'S ALPHA' FOR VEHICLE ATTRIBUTES IMPORTANCE (n=460)

Sr.	Vehicle Attributes	Cronbach's Alpha	N of Items
1.	Comfort and Convenience	.749	6
2.	Safety and Security	.774	6
3.	Exteriors of Vehicle	.742	3
4.	Other Aspects	.493	4

Source: (Compiled by researcher)

Tables 1 and 2 show the vehicle to be comfortable and convenient how much importance will you, as consumer assign is asked, this is done on Cronbach's alpha model, which is 0.749. This is reliable. Vehicle safety and security, importance rating on Cronbach's alpha is 0.774. This is reliable. An exterior of the vehicle, importance rating on Cronbach's alpha is 0.742. This is reliable. Other aspects of the vehicle showed Cronbach' alpha is 0.493, which is not reliable.

The following tables show the 'Cronbach's Alpha' values for each variable assessed for agreement ratings assigned by the owners' of the vehicle under four categories of; 'vehicle comfort attributes', vehicle safety attributes', 'vehicle exteriors', and 'other important aspects' gauged before buying.

TABLE 3. 'RELIABILITY STATISTICS' FOR VARIABLES USED TO ASSESS AGREEMENT. ITEM-TOTAL STATISTICS (n=460)

Sr.	Vehicle Comfort Attributes	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1.	AC/AV	14.60	5.973	.243	.699
2.	Mirrors, PW.	14.95	5.598	.419	.649
3.	Interior Space	15.07	6.159	.161	.725
4.	Reclining Seats	14.83	4.961	.536	.606
5.	Height Adj. Seats	14.81	4.710	.537	.603
6.	Overall Comfort	14.55	4.506	.639	.563
Sr.	**Vehicle Safety**				
1.	Side impact beams	14.66	6.517	.369	.705
2.	braking systems	14.80	5.913	.473	.674
3.	Tyres	14.91	6.588	.387	.699
4.	Airbags	14.75	6.158	.403	.697
5.	Child proof windows	14.71	6.132	.486	.671

Sr.	Vehicle Comfort Attributes	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1.	AC/AV	14.60	5.973	.243	.699
2.	Mirrors, PW.	14.95	5.598	.419	.649
3.	Interior Space	15.07	6.159	.161	.725
4.	Reclining Seats	14.83	4.961	.536	.606
5.	Height Adj. Seats	14.81	4.710	.537	.603
6.	Overall Safe	14.42	5.629	.602	.633
Sr.	**Vehicle Exteriors**				
1.	Aerodynamic body	5.84	1.616	.345	.709
2.	Body coloured ORVM	5.95	1.357	.577	.405
3.	Overall design	5.83	1.347	.486	.527

Source: (Compiled by researcher)

TABLE 4. 'CRONBACH'S ALPHA' FOR VEHICLE ATTRIBUTES AGREEMENT
(n=460)

Sr.	Vehicle Attributes	Cronbach's Alpha	N of Items
1.	Comfort and Convenience	.688	6
2.	Safety and Security	.719	6
3.	Exteriors of Vehicle	.653	3
4.	Other Aspects	.483	4

Source: (Compiled by researcher)

Tables 3 and 4 show agreement rating for vehicle design aspect Cronbach's alpha for comfort and convenient as 0.688, which is reliable, for safety and security it is 0.719, for exteriors it is 0.653, which is moderate reliable. For other aspects it is non-reliable with alpha .483.

The second service part consists of vehicle service center attributes importance on scale 1-10. The part consisted of attributes agreement ratings for same vehicle service center attributes present in current vehicle service center and ideally what they expect the service center should provide on scale of 1-4.

The following tables show the 'Cronbach's Alpha' values for each service center variable assessed for ratings against importance assigned by the owners' of the vehicle under four categories of current service center; 'initiating the service visit', 'service advisor attributes', 'service facility', and 'service quality' gauged by service consumers'.

TABLE 5. 'RELIABILITY STATISTICS' FOR VARIABLES AGAINST SERVICE CENTER IMPORTANCE. ITEM-TOTAL STATISTICS (n=460)

Sr.	Initiating the service visit	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1.	Easy to fix	25.42	7.376	.634	.845
2.	According to your time	25.87	5.922	.818	.764
3.	Completion in time	26.25	5.157	.746	.801
4.	Prior intimation	25.62	6.270	.644	.836
Sr.	**Service Advisor**				
1.	Friendly and courteous	25.75	6.742	.683	.805
2.	Response	26.04	6.455	.720	.788
3.	Capacity to tell you	26.00	6.450	.721	.788
4.	Copy of details provided	25.56	6.601	.612	.837
Sr.	**Service Facility**				
1.	Easy entry and exit	24.13	3.915	.336	.785
2.	Location of the center	24.08	3.391	.689	.580
3.	Cleanliness in the center	23.93	3.615	.546	.659
4.	Waiting Room	23.79	3.453	.562	.648
Sr.	**Service Quality**				
1.	Time required	34.45	10.824	.763	.896
2.	Service Transparency	34.15	11.480	.864	.868
3.	Helping nature of staff	33.93	12.543	.762	.891
4.	Quality of Service	33.98	12.216	.798	.883
5.	Cleanliness after service	33.71	12.848	.695	.903

Source: (Compiled by researcher)

TABLE 6. 'CRONBACH'S ALPHA' FOR VEHICLE SERVICE CENTER ATTRIBUTES IMPORTANCE (n=460)

Sr.	Service Center Attributes	Cronbach's Alpha	N of Items
1.	Initiating Service	.854	4
2.	Service Advisor	.846	4
3.	Service Facility	.732	4
4.	Service Quality	.909	5

Source: (Compiled by researcher)

Tables 5 and 6 show service attributes importance on scale 1-10. For service aspects with initiating service visit it is 0.854, service advisor it is 0.846, service facility it is 0.732, for service quality it is 0.909, which indicates high reliability on service front for importance rating. This is highly reliable.

The following tables show the 'Cronbach's Alpha' values for each service variable assessed for agreement ratings assigned by the owners' of the vehicle under four categories of; 'initiating service visit', 'service advisor', 'service facility', and 'service quality' gauged for current vehicle service center providers.

TABLE 7. 'RELIABILITY STATISTICS' FOR VARIABLES AGAINST CURRENT SERVICE CENTER AGREEMENT ITEM-TOTAL STATISTICS (n=460)

Sr.	Initiating the service visit	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1.	Easy to fix	7.93	3.792	.672	.771
2.	According to your time	8.47	4.018	.751	.737
3.	Completion in time	8.85	4.739	.487	.847
4.	Prior intimation	8.31	3.789	.710	.751
Sr.	**Service Advisor**				
1.	Friendly and courteous	8.32	5.086	.760	.818
2.	Response	8.66	5.732	.724	.835
3.	Capacity to tell you	8.62	5.595	.707	.840
4.	Copy of details provided	8.32	5.059	.712	.840
Sr.	**Service Facility**				
1.	Easy entry and exit	8.87	2.463	.286	.707
2.	Location of the center	8.76	2.352	.604	.496

3.	Cleanliness in the center	8.55	2.362	.459	.576
4.	Waiting Room	8.53	2.328	.458	.576
Sr.	**Service Quality**				
1.	Time required	11.29	9.988	.563	.899
2.	Service Transparency	11.09	9.158	.818	.845
3.	Helping nature of staff	10.90	9.012	.743	.860
4.	Quality of Service	10.97	8.772	.799	.847
5.	Cleanliness after service	10.70	8.672	.736	.863

Source: (Compiled by researcher)

TABLE 8. 'CRONBACH'S ALPHA' FOR VEHICLE CURRENT SERVICE CENTER AGREEMENT. (n=460)

Sr.	Service Center Attributes	Cronbach's Alpha	N of Items
1.	Initiating Service	.825	4
2.	Service Advisor	.870	4
3.	Service Facility	.657	4
4.	Service Quality	.888	5

Source: (Compiled by researcher)

Tables 7 and 8 show service attributes agreement on scale 1-4. For service aspects with initiating service visit it is 0.825, service advisor it is 0.870, service facility it is 0.657, for service quality it is 0.888, which indicates high reliability on service front for agreement rating. This is highly reliable.

The following tables show the 'Cronbach's Alpha' values for each service center variables ideally expected for ratings against agreement assigned by the owners' of the vehicle under four categories of; 'initiating the service visit', 'service advisor attributes', 'service facility', and 'service quality' gauged by service consumers'.

TABLE 9. 'RELIABILITY STATISTICS' FOR VARIABLES TO ASSESS IDEAL SERVICE CENTER AGREEMENT. ITEM TOTAL STATISTICS (n=460)

	Initiating the service visit	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1.	Easy to fix	9.12	4.501	.705	.817
2.	According to your time	9.29	4.546	.716	.813
3.	Completion in time	9.24	4.579	.667	.834

	Initiating the service visit	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1.	Easy to fix	9.12	4.501	.705	.817
2.	According to your time	9.29	4.546	.716	.813
3.	Completion in time	9.24	4.579	.667	.834
4.	Prior intimation	9.32	4.660	.722	.811
Sr.	**Service Advisor**				
1.	Friendly and courteous	9.00	4.477	.700	.820
2.	Response	9.04	4.510	.682	.828
3.	Capacity to tell you	9.13	4.737	.675	.831
4.	Copy of details provided	9.03	4.404	.755	.797
Sr.	**Service Facility**				
1.	Easy entry and exit	9.04	8.213	.497	.483
2.	Location of the center	9.04	7.788	.567	.440
3.	Cleanliness in the center	9.10	8.083	.508	.473
4.	Waiting Room	8.90	3.981	.322	.810
Sr.	**Service Quality**				
1.	Time required	12.30	8.237	.721	.873
2.	Service Transparency	12.47	8.504	.745	.867
3.	Helping nature of staff	12.50	8.876	.603	.898
4.	Quality of Service	12.26	7.972	.800	.854
5.	Cleanliness after service	12.31	7.973	.821	.849

Source: (Compiled by researcher)

TABLE 10. 'CRONBACH'S ALPHA' FOR VEHICLE IDEAL SERVICE CENTER AGREEMENT. (n=460)

Sr.	Service Center Attributes	Cronbach's Alpha	N of Items
1.	Initiating Service	.858	4
2.	Service Advisor	.858	4
3.	Service Facility	.586	4
4.	Service Quality	.892	5

Source: (Compiled by researcher)

The tables 1.9.33 and 1.9.34 show ideal service center agreement for the service aspects which consumers expect to be in place showed the Cronbach's alpha for initiating service visit .858, for advisor it is again .858, for service facility it is non-reliable with .586, and for service quality it is .892. This is for ideal service center attributes, which show moderate to high reliability.

This indicates reliability of the structured schedule used for data collection.

5. CONCLUSIONS

Practical Significance:

Vehicle industry in India is been at the corner stone of economic development for many years now. As the per capita income of the Indian populous is growing, so will be the awareness towards specific requirements in the vehicle to buy by the users'. Competition to attain the market will make automakers' a run for their investments. To make sure they have invested in such product development, which performs to the expectations of the buyers', automakers' will always have to look for, and gauge requirements and expectations from the population. As the number of vehicle owners' will grow, requirements identification that are valid, which can be workded upon will be the necessary strategy to be followed by the automakers', which will make it absolutely necessary to have information about the buyer requirements from the vehicle and vehicle segments.

CONCLUSION:

The paper describes and discusses the reliability and validity of variables which assess requirements from vehicle as product and service for Multi-Utility vehicle segment taken in totality as a final product. It analyzes the scales for variables with (Hatchback, Sedan, Mini-van, and Mid-size) vehicle segment apart from multi-utility segment.

6. LIMITATIONS AND FUTURE RESEARCH

The study was limited to reliability analysis and validation for application of the instrument to collect requirements for MUV/MPV vehicle segment and vehicles in (Hatchback, Sedan, Mini-van, and Mid-size) segment. The sample drawn for study is primarily from owners' of vehicles from few vehicle segments. Therefore, caution should be practiced before generalizing the findings of study to other segments of vehicles. Additionally, what is lacking is the only consideration of vehicle variables and service variables of vehicle. Future research should study the economic, social and environmental perspectives for offering better reliable and valid measurements to gauge vehicles requirements. Further research can be on specific segments of vehicles, like SUV and MUVs. Also additional dimensions with respect to strategic resource

identification and utilization from designing and manufacturing perspective to be cost and value oriented offering can be considered.

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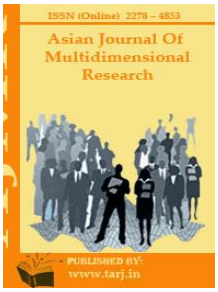

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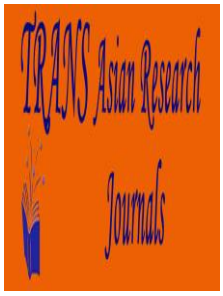

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BUILDING RESEARCH SKILLS THROUGH THE USE OF MEDIA EDUCATION RESOURCES DURING BIOLOGY LESSONS

Hasanova Shokhista Bobokholovna*

*Doctor of Philosophy of Pedagogical Sciences (PhD),
Navoiy Regional Advanced and Retraining Center for Public Education staff,
UZBEKISTAN
Email id: xasanovaumid63@inbox.uz

ABSTRACT

The Article Describes The Methodology Of Developing Students' Research Skills Through The Organization Of Biology Lessons In General Secondary Schools Based On Media Education Resources. The teacher should not limit students to the textbook and the questions that reinforce it but should focus on the formation of essential and specific competencies in biology while working on the Internet. Extracurricular activities include observation on specific topics, conducting experiments, educational equipment, and preparing exhibition material. They are held in a biology room, in a wildlife corner, in a study area and nature.

KEYWORDS: *Competencies, Media Education Resources, Biological Concepts, Wildlife Corner, Learning Experience Plot.*

INTRODUCTION

In our country, unique opportunities are being created to train specialists with high intellectual potential, modern knowledge and skills, a new worldview, and independent thinking. In this regard, the use of promising areas of information and communication technologies - the use of the media in the educational process - is being established. In the educational process, the media, i.e., the Internet, television, radio, cinema, video, telephone, and other means of communication, show their effectiveness.

MAIN BODY

When using media resources, students should:

- find out if the names, topics, and textbooks of the sources in the database are relevant if they are competent to use comments, descriptions and additional educational materials;
- teach systematic use of materials and sources in biology on textbook topics;
- develop competence to process visual data materials (in the form of pictures, drawings,

figures).

Organizing the learning process based on media education resources ensures the effectiveness of the lesson and encourages students to love science, creativity, innovation, and increase their knowledge. One type of media education is the use of the Internet in the classroom.

The use of the Internet in the field of education fully reveals all the possibilities of the use of information technology, eliminates the existing shortcomings in the classroom, the personal relationship with the teacher is smoothed [1]

The teacher should not limit students to the textbook and the questions that reinforce it but should focus on the formation of essential and specific competencies in biology while working on the Internet. When teaching the topic "Origins and Centers of Diversity of Cultivated Plants" in 9th-grade biology lessons, the teacher briefly explains the new topic and refers to the tasks prepared following the didactic, methodologically, and organized scientific, and methodological requirements.

Assignment 1. The computer named the centers of origin of cultivated plants. Find a map of the origins and diversity centers of cultivated plants on the Internet. Locate these centers correctly in the country using the Internet. (Based on a map of cultural plant origins and diversity centers):

1. South Asian Tropical Center.
2. Central Asia.
3. Central South-West Asia.
4. Mediterranean Center.
5. Abyssinian center.
6. Central America.
7. South America.

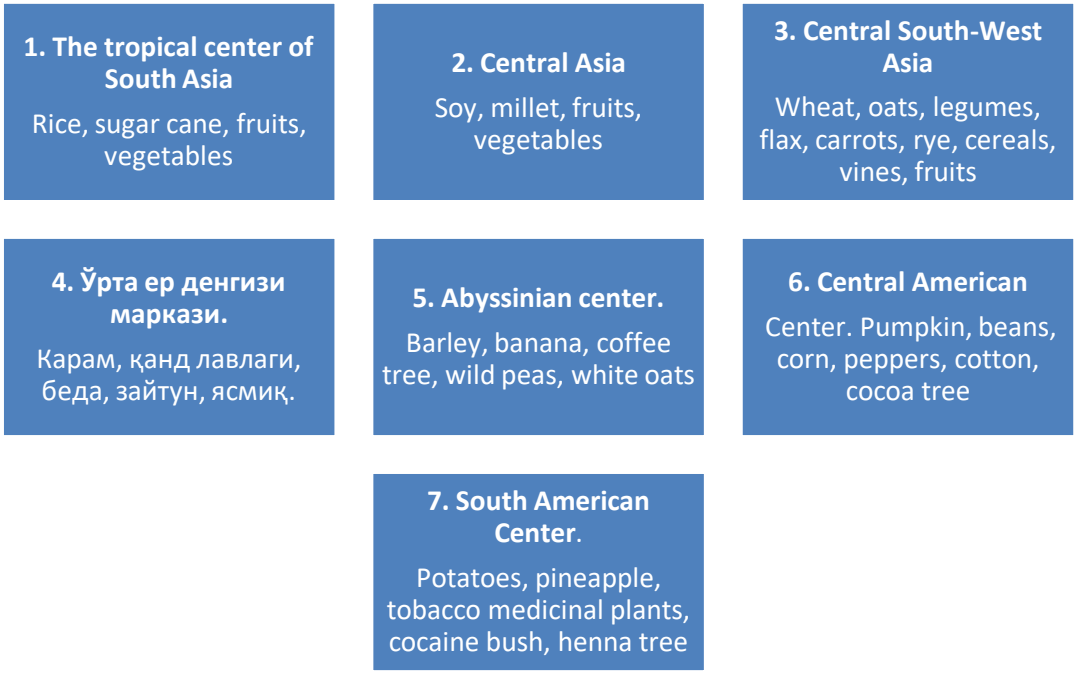
Keys for Assignment 1

Assignment 2. The computer records the names of plants that have spread from the centers of origin of cultivated plants. A teacher should use the knowledge of geography and the map. In the

boxes, write the centers' names and the names of the plants that originate from that center. Names of plants from the centers of origin of cultivated plants: rice, soybeans, millet, cabbage, sugar beets, vegetable crops, wheat, pineapple, medicinal plants, bananas, cocoa trees, beans, flax, cotton, tobacco, sugar cane, oats, alfalfa, corn, coffee tree, lentils, pumpkin, barley, peppers, potatoes, legumes, carrots, henna, olives, fruits, cocaine bush, peas, food crops, rye, vines, vegetables

Keys for Assignment 2.

Students complete this task as follows.



To perform these tasks, students first read the text of the textbook subject. The tasks are done on a computer. Students complete this task, find the topic on the computer and the Internet, choose the correct answers, download the necessary materials, and submit the answer to the task in the order prepared by the teacher.

Assignment 3: On the Internet (based on the map thof centers of origin of cultivated plants and their diversity), specify the countries where the centers of origin of cultivated plants are located on the map. Based on the knowledge of botany and geography, explain why these plants come from specific centers.

In the third task, the centers recommended on the Internet should be carefully acquainted with the climate, flora of the countries they are located in, and respond based on their knowledge of botany and geography.

Teachers should integrate organizational forms of learning when arranging biology lessons based on media education, and lessons and related excursions should have a separate approach to each of the homework, after class, and extracurricular activities.

A tour is a necessary form of learning in which students interact directly with nature, make their observations, summarize observations, and draw conclusions.

Homework is linked to the lessons because it is experimental in nature. Students conduct less complex experiments at home. To confirm the assumptions made in the lesson, they repeat or complete the experience in the classroom, at practical work.

Extracurricular activities are more complex than homework and require appropriate plants, special tools and other equipment as well as a long time to complete. Extracurricular activities include observation on specific topics, conducting experiments, educational equipment, and preparing exhibition material. They are held in a biology room, in a wildlife corner, in a study area and nature. Extracurricular activities are mandatory and students are assessed for this. The activities are to be organized on the basis of the following topics from the 9-th grade curriculum. All tasks completed by the student in 6 extracurricular activities will be recorded on video over the phone and presented as a presentation. Sends telegrams to teachers and students (Table 1).

TABLE 1

	Topic	**Location**	**Duration**
	Cellular forms of life (the study of the reproduction of blue-green algae)	Wildlife Corner	2-3 weeks
	Cellular forms of life (reproduction of Pichan rod bacteria)	Wildlife Corner	1-1.5 weeks
	The World of Mushrooms (Growing Mushrooms)	Wildlife Corner	1month
	Reproductive species (Study of reproductive species)	Wildlife Corner	2 weeks – 4months
	Postembryonic development	Wildlife Corner	2-3 weeks
	Phenotypic variability	Wildlife Corner	1-2 months

At the beginning of the school year, one topic is given to 3-4 students. Students will be given a topic, start and end dates. The student must do 1-2 extracurricular activities per year. If there is no wildlife area or area of the learning experience at the school, the teacher recommends doing it at home in agreement with the parents. Below we present our recommendation for organizing extracurricular activities on the topic "Reproductive species." According to the teacher's work schedule, this topic starts 3-4 months before the beginning of the topic. On the day of the lesson, the work will be completed, and the students will have ready visual material for the lesson.

1. To find the required equipment need.
2. Appoint students to do the job
3. Explain to students the progress of the work and mark the work they do daily.

Three students will be selected from the class. One of them is assigned to study strawberry reproduction using curls; the second is assigned to study garlic bulbs, the third is assigned to study potato tubers, and samples of these plants are distributed to them for cultivation. Students set the plants in a designated place and take care of them according to their teacher's instructions. The germination time of the plant, the amount of water and nutrients are counted and recorded in an observation book. Keep records of changes in them in the care book. If a student's workflow is recorded on a video phone, it can be shown to classmates through a video projector at the end of the work. In this way, students will witness the growth of potatoes from tubers, strawberries from curls, garlic from onions.

Students are not assessed in extracurricular activities; this is not necessary. Extracurricular activities serve to strengthen, expand, and develop students' knowledge and skills in the field of biology.

CONCLUSION

At the end of the above forms of biology teaching: lessons, extracurricular activities, there is constant consistency, coherence, and communication, which ensures the integrity of the learning process, the development of the research skills of students.

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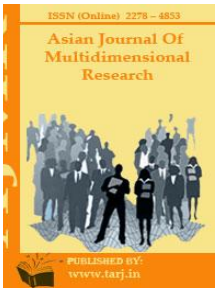

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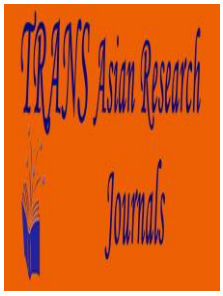

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METHODS OF FORMING PUPILS' READING COMPREHENSION SKILLS IN PRIMARY SCHOOL MOTHER LANGUAGE LESSONS

Abdijamilova Makhfuza Maxmudovna*

*Assistant Teacher,
Department of primary Education,
Nukus State Pedagogical Institute named after Ajiniyoz,
UZBEKISTAN
Email id: maxfuzaa_88@mail.ru

ABSTRACT

This article provides information on how pedagogically mother language teaching methods are among the pedagogical disciplines and how to use teaching methods to make them easier for pupils to understand in the teaching process.And at the same time about the methods and techniques that ensure the maximum development of pupils' cognitive activity and independence, good thinking and speech, thoroughness of knowledge, skills and abilities in the process of teaching in the mother language mentioned.

KEYWORDS: *Teaching Methodology, Pedagogical Discipline, Phonetic, Pupils' Cognitive, Primary Education Method, Reading Style, Literacy, Pupil Speech Enhancement Techniques.*

INTRODUCTION

Mother language teaching methodology of mother language teaching is one of the pedagogical disciplines. The method of mother language can be called a practical science, because it is based on the theory and performs the practical tasks of teaching, educating and nurturing pupils. Like other disciplines, mother language teaching has its own subject. The subject of study of mother language teaching methods is the process of mastering the mother language in the context of teaching (learning) that is, learning speech, writing, reading, grammar, phonetics, and so on.

Main part

The mother language method studies the laws of formation of skills and abilities in the Uzbek language, grammar and other branches of the science of language, the system of scientific concepts.The results of such a study will serve as a solid foundation for the development of the most convenient and easy system of language teaching based on the learned laws. This system should provide each student with the necessary minimum of language knowledge, skills and

competencies. The method meets a number of educational requirements, i.e. to educate students in the spirit of the idea of national independence, to help them to develop their thinking, as well as to make education more useful and compact. There are 3 tasks in the method of teaching the mother language in primary school.They are:

1. What to teach? prepares the answer to the question. This means that the content of education that is, the curriculum of the primary school mother tongue course, is determined, textbooks and various manuals are created for students, constantly improved, and checked for relevance and effectiveness.
2. How to teach? prepares the answer to the question. That is, it develops teaching methods, methodological approaches, a system of exercises, recommendations for the implementation of this or that manual, a system of sequence of practical work of students, the lesson and its types.
3. Why teach in the same way? prepares the answer to the question. This includes studying the most useful methods from a scientific point of view, substantiating the chosen methods, experimental verification of recommendations, and so on.

The mother language teaching method examines the level of knowledge, skills and abilities of pupils at different stages of education, identifies the cause of success or failure of teaching, checks speech, spelling and other typical errors and prevents them, whether finds solidification methods. Time itself shows the role of method as a pedagogical science. Thus, currently in the process of teaching the mother language, the methods and techniques that ensure the maximum development of pupils' cognitive activity and independence, good thinking and speech, thoroughness of knowledge, skills and abilities are activelooking for.

The language is taught in preschools, primary and secondary schools, pedagogical schools and universities. The tasks of teaching the mother language at these stages of education are certainly not the same However, the basic requirements of science are the same at all stages of education, the subject of which is the acquisition of language - the process of learning, the method studies the objective laws of language acquisition, develops the system of education and improves.

Each stage of mother language teaching has its own characteristics. Mother language teaching methods in the primary grades cannot be based on any foundation that all sections have studied before, except for the development of pupils' speech. As you can see from his "primary education method". The main sections of the methodology of teaching the mother language in primary school are:

- ✓ **Literacy is the teaching of elementary reading and writing.** Teaching children to read is a serious problem not only in pedagogy, but also in social life.
- ✓ **Reading style.** The task of the subject of reading in the primary grades is, first of all, to equip children with fast (normal), accurate, conscious and expressive reading skills.
- ✓ **Grammar and spelling.** This section includes teaching basic spelling and grammar, grammar concepts, and basic spelling skills.
- ✓ **Pupil Speech Enhancement Techniques**. This section has a special place in the primary grades. For the first time, children understand language and speech as a subject of study, they begin to understand not only what they want and are interested in, but also the need to think and plan events. and occupy written speech, which differs from oral speech even in its morphological form.

The methodology should also enrich children's speech and develop their syntax and connected speech. The practical significance of the method is to ensure that pupils fully understand the richness of the language.

As a methodological science, the method of teaching the mother language should provide ways of teaching in school that guarantee the good development of students' speech, explaining the social role of comprehensive knowledge of the language. So, speech development is an important part of school.

Analytical-synthetic work shifts from working on language to general conclusions, theoretical definitions and rules, on the basis of which again live oral and written communication, correct writing and correct pronunciation. Pupils will be enriched practically and theoretically with lively communication, correct writing and correct pronunciation.They consciously apply in practice the language patterns they encounter in the process of observation, the rules they have learned and theoretically mastered they reach. This aspect of the method of teaching the mother language in school corresponds to both the laws of truth-telling and the tasks of modern didactics.

Pedagogical psychology examines the process by which pupils acquire knowledge and develop skills and competencies; it explores the challenges children face in the process, identifies the general patterns of children’s development in the learning process, and determines the growth of knowledge, skills, and competencies imparted in general and in particular from the mother language.
In this way, pedagogical psychology helps to determine the methodology in the selection of teaching materials, the content and scope of teaching the mother language in primary school, the placement of material by class and in a certain sequence within each class. Pupils will be able to take into account the age characteristics of children and take an individual approach to pupils, using the data of the science of psychology, the most effective methods and forms that contribute to the proper development of analytical-synthetic activities.

Mother language teaching is also intertwined with general pedagogy. Every subject in school education, including the mother language should not only impart knowledge, skills and competencies, but also raise and educate the child. Indeed, in the process of teaching the mother language, children's worldview is formed, their cognitive abilities grow, they develop mentally, morally, aesthetically, certain positive qualities in their character appear, they learn to work, and so on.The science of pedagogy scientifically develops the issues of comprehensive development and upbringing of children. The method of teaching the mother language is based on the latest developments in pedagogy, as well as on the scientific data on the above issues.

Linking mother language teaching to general pedagogy is especially important in the primary grades. Many of the habits and skills that young pupils need in community and individual learning activities are not yet nurtured. Skills and habits such as quick access to organizational team work, attentive listening, reading and writing, active and independent work, thorough and orderly, as beautiful as possible, general pedagogical activities carried out by the teacher and the school system. Similar theoretical and practical issues of education are developed by pedagogy. Only if the teacher meets the pedagogical requirements can the mother language be organized in a way that is educationally beneficial.

There are a number of types of mother language lessons available in the primary grades, and they include the following:

1. Reading, writing, grammar material related to learning, observation, and the social activities of pupils, while enhancing their oral and written speech.

2. To teach literacy to first-graders, that is, to teach them to read and write elementally, to improve these skills and turn them into skills.

3. To study the norms of literary language, i.e. spelling and punctuation, orfoepic correct pronunciation, expressive speech and stylistic elements.

4. The study of theoretical materials in grammar, phonetics, vocabulary, the formation of a system of scientific concepts in language.

5. To acquaint pupils with examples of fiction, non-fiction and other literature through reading and grammar lessons, to develop in them the ability to understand a literary work.

In conclusion, the methodology of teaching the mother tongue approaches many important issues and aims to solve them. And these tasks can be classified by methodologists as follows.

- ✓ Determining the size, content, purpose, interdisciplinary links and distribution of materials by class in the mother language subject at each stage of education.
- ✓ Recommend the most effective methods of teaching, non-traditional guidelines that keep pace with the times in order to increase the effectiveness of the acquisition of knowledge.
- ✓ To master the system of knowledge defined in the mother language program in a certain order, and on this basis to solve problems related to the conditions that are conducive to the regular development of skills and abilities of pupils.
- ✓ What to teach? How much to teach? What types of teaching to use? Which teaching method do you prefer? Why choose? answer the questions such as.

CONCLUSION

In this way it is possible to study the level of mastery of pupils at different stages of education through the methodology of teaching the mother language. It also teaches ways to check the successes or failures of teaching, and to eliminate speech, spelling, and other typical errors.

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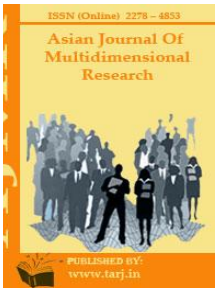

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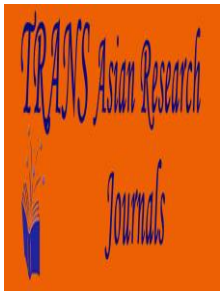

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MEASURES AGAINST THE DAMAGE OF THE INSECTS OF THE NIGHTSHADES FAMILY IN THE SOYBEAN PLANT

Saidganieva Shakhodat Talatbek qizi*; Yuldasheva Sohibabonu No'monjon qizi**

*Assistant,
Andijan Branch of Tashkent State Agrarian University,
Andijan, UZBEKISTAN
Email id: ssaidganiyeva@mail.ru

** Assistant,
Andijan Branch of Tashkent State Agrarian University,
Andijan, UZBEKISTAN
Email id: soxibabonu@mail.ru

ABSTRACT

Soybeans account for 40% of the total vegetable oil produced in the world today. Among leguminous crops, soybean ranks first in the world in terms of gross yield and crop area. Our government pays great attention to the cultivation of soybeans in our country and to more fully meet the needs of the population in soybean oil.

KEYWORDS: *Soybean And Its Importance, Cotton Nightshade, Caradrina, Struggle.*

INTRODUCTION

The main reason for such wide opportunities for the cultivation of soybeans in the country is the importance of soybean products in the national economy. Therefore, a single grain of soybean contains 38-42 percent, and in some varieties up to 55 percent of the protein required by humans. Soy contains a complete rare protein that is not inferior to animal protein in terms of nutritional value. It contains unique biologically active substances, lycithin, choline, vitamins a, b and e, as well as macro and micro elements and other valuable substances. Today, when there is a shortage of protein all over the world, the protein richness of soybeans, the presence of all the essential amino acids in the protein is of great importance, which further increases the consumption value of soybeans.

Main part

In addition, when livestock are fed soy feed, their daily weight gain doubles. For fodder purposes, soybean husks, sorghum, flour and greens are used. Kunjara contains 38.7% protein

and 5.5% oil. Soy flour and milk replaces milk in the diet of calves. 1 ton of soybeans contains 40% protein and 1.4% oil. Soybean fodder is also a valuable fodder. Its highest nutritional value is observed when harvested during the period of flowering and grain filling. 145-301 gr of protein per soybean nutrient unit. the amount of carotene, protein and calcium in its greens is much higher than in cereals. Soybean meal is also valuable: it contains 0.47-0.54 food units per 1 kg, 110-150 gr of protein. soy straw can be used as fodder hay. it contains 24.8% protein and 1.5-2.9% oil.

Soybean waste, which is not used in the food industry and animal husbandry, can be used to make a variety of products - building boards, fabrics, artificial fertilizers. Soybean oil residues are used in paints, soaps, varnishes, textiles, chemicals and industry. Soybeans are used to make plastics, films, linoleum, technical oils and many other products.

Legumes, which are legumes, are a good past crop for all agricultural crops - winter wheat, cotton, corn, vegetables and other crops.

Soy is damaged by pests, diseases and several species of weeds. As a result, in most cases, 30-40% of the harvest is lost. In some years, in particular, the lack of control measures leads to the complete destruction of the crop.

Soybeans are infested by spider mites, aphids, reptiles, as well as pests such as autumn moths and earthworms.

Cotton nightshade (Heliothis armigera Hb) infects seeds sown after sowing by eating gnats near the roots of young plants. In this case, the sprouted grass is destroyed. Basically, this insect is damaged by worms. The length of the worm is up to 5 cm. The body is glistening blue. Along the edges of the back there are two prominent lines (roads) and in the middle of the back there is a back vein. When viewed in the light, this vein is visible in the form of a third line. This insect lives mainly in the soil during adult worms. In early April, the butterflies turn into mushrooms and hatch in 2-3 weeks. The worms that hatch from the eggs continue to infect the new grass.

In addition to soybeans, caradrina infects other crops such as cotton, alfalfa, beets, corn, hemp, and potatoes. Caradrina eats leaves and gnaws damage. Adult caradrina larvae are 2.5-3 cm long, the head is brown, the middle part is open. The body is covered in green, dark brown, sparse pockets and thin hairs. Caradrina often winters in the stage of adult butterflies and eggs.

Figure 1. Cotton nightshade (Heliothis armigera Hb)

Counter measures. The plight of the families of the victims of the pestilence took place in a coordinated manner.

1. It is recommended against pests (implementation of agrotechnical measures collection).

2. Using the pheromone in the tincture, determine the level of its development in each pile. If a butterfly starts to fly and an average of 2-3 butterflies are caught in one trap every night, immediately place the trichogramma in the same direction. Subsequently, in case of bordeaux worms, apply poaching at a ratio of 1: 10-15 per hectare, or twice apply microbiological preparations called dendrobacillin, bitoxybacillin (3-4 kg / ha) or dipel (1-1.5 kg / ha). (every 7-10 days) full. It is necessary to carry out these measures against each generation of nightingales. In addition, it is necessary to use trichogramma against eggs, poachers against worms and golden entomophagy against eggs and worms.

3. In the chemical control against pests, Indoxomectin is used at 0.45-0.7 l / ha and Protect at 0.5 l per hectare.

IN CONCLUSION

Soybeans are also of great importance in the food industry, animal husbandry and construction. In addition, it contains a lot of protein and vitamins, as well as trace elements necessary for humans. During the cultivation of soybeans, it is infested with many reptiles and rodents. As a result, the quality of soybeans deteriorates, and yields fall sharply. It is necessary to carry out control on the basis of a harmonized system of control against shade pests.

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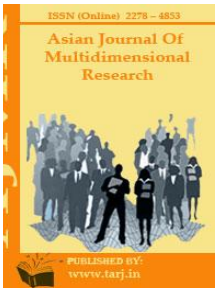

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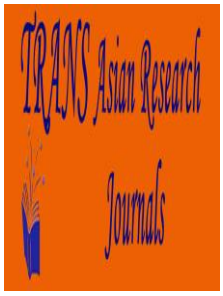

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FUTURE TRENDS IN ARTIFICIAL NEURAL NETWORKS

Anirban Chakraborty*

*MTECH, Artificial Intelligence,
Department Of Computer Science and Engineering,
Lovely Professional University, INDIA
Email id: anirbanchakraborty456@gmail.com

ABSTRACT

This paper provides a short review and future trends of the Artificial Neural Network (ANN) prediction methodology. It is used to maximize the prediction of the model with less experimental data dependency. In addition to various ANN training courses, the basic steps in MATLAB are recorded. The preparation is directed at reducing average error. The Artificial Neural Network model can effectively be used to forecast performance parameters that helps in picking up the process preparation and optimization of the machine parameters optimally.

KEYWORDS: *ANN, CNN, RNN, Machine Learning, Artificial Intelligence*

I. INTRODUCTION

Artificial Neural Networks [1] is a network of linked nodes. It is a bunch of the vast neuron like network as like as we get in a human brain. ANN is a computer model focused on central nervous systems (especially the brain) of animals that are able to learn machinery and identify patterns. These are usually presented as integrated "neuron" structures which can measure values from inputs via network feeder. An ANN is optimized by a learning method for a particular application, such as pattern identification or data clustering. Training in biology system requires changing the neural synaptic relationships. Infact, a neural network may perform tasks which a linear output cannot perform.

When a neural network function fails, its concurrent nature allows it to proceed without any issues. In any program it can be applied. A neural network knows next steps automatically and requires no reprogramming. ANN is therefore becoming famous for forecasting outcomes on certain parameters. ANN can be used to remove the response parameters from process parameters during machine learning processes when they have been properly trained. Application of ANN to these procedures must be done with proper care and preparation must be given to function. Therefore, the design of an ANN varies from that of the microprocessor architecture. For broad neural networks, it takes a long time to process.

II. LITERATURE SURVEY

In the back-propagation-algorithm-based simulation, *Pradhan and Bhattacharya*[2] showed the use of RSM and ANN. During the micro-hole analysis on Ti-6Al–4V, they improved the processing characteristics of Micro-EDM. The input parameters for the ANN prediction model were used. The optimization performance measures is MRR, TWR and overweight. They developed an ANN model using a neural network back-propagation method, which had been established with the help of the experiments. For a multi-layer input network, the **Levenberg-Marquet** teaching Algorithm has been used. Through evaluating the estimation of ANN answers for multi purpose optimal input method variables and experimentally collected responses, they also observed that the percentage of error is very low and appropriate. In order to obtain the best micro-machining output combination of optimized process parameter settings, we could use the established ANN models for the micro-EDM cycle. The relation of measured and expected MRR values is shown in Fig 1.

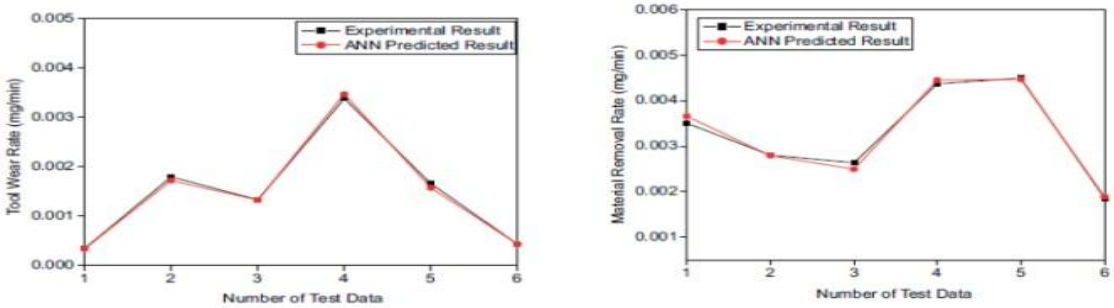
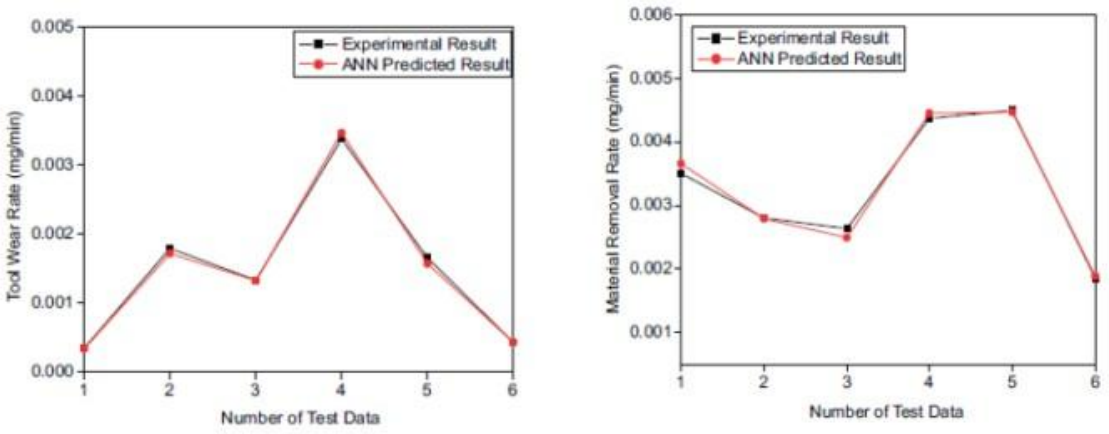


Fig. 1(a) Experimental analysis of expected MRR outcomes 1(b) Experimental comparison of TWR and ANN projected outcomes.

Rao et al.[3] have implemented the hybrid model and configured EDM surface SR with genetic algorithms (GA) and ANNs. The tests were conducted by adjusting the average current and voltage and calculated the related SR values. Neural network models of multi-perceptron is built with the program Neuro Solutions. For maximize network weighting variables, the GA definition is used. When the network is configured using GA, there is a substantial reduction in mean square loss.

As a consequence of application to the hot work steel copper electrode DIN1.2344, *Atefi et al.*[4] investigated the effect of various EDM parameters such as pulse rate, pulse voltage, pulse on-time and pulse off-time at finishing point on MRR. Complete factor tests were chosen and statistical analysis of the MRR data collected from the study was carried out. Appropriate ANN for the MRR estimation was planned for the completion stage of DIN1.2344 hot-work steel. Eventually, a hybrid approach has been established to which there is an error in the ANN, i.e. a mixture of statistical analysis and the ANN algorithm.

The ANN and GA combination to evaluate a parameter optimization model was stated by *Gao et al.*[5]. In order to optimize parameters for optimization of performance, they set up the ANN model with the **Levenberg-Marquardt** algorithm which represent the relationship between



MRR and the input parameter. A model has been found to be effective and the machining parameters of MRR are optimised. We found that the network performs better, so convergence is quicker. To refine parameters, GA has been used. The use of standardized parameters has improved MRR. Fig 2 provides an overview of regression between MRR and estimation of the station.

Fig. 2(a) Analyzes of regression between MRR 2(b) Review of regression between MRR and forecast

In the simulation and optimisation of the two answers i.e, *Wang et al.*[6] have used the hybrid Artificial Neural Network and the Genetic Algorithm technique in electrical machining MRR and SR. They also applied a two-phase hybridization method to carry out ANN modeling and multi-objective optimisation. In the first step GA was used in the multilayer feed-forward neural network model for learning algorithms. In the second phase, they employed the exercise functionality for GA-based optimization utilizing model equations extracted from the ANN simulation. **Gene-Hunter** was used for optimisation. The optimised error of the ANN model for MRR and SR was 5.60 and 4.98 respectively. Such two answers indicated that they acknowledged the pattern.

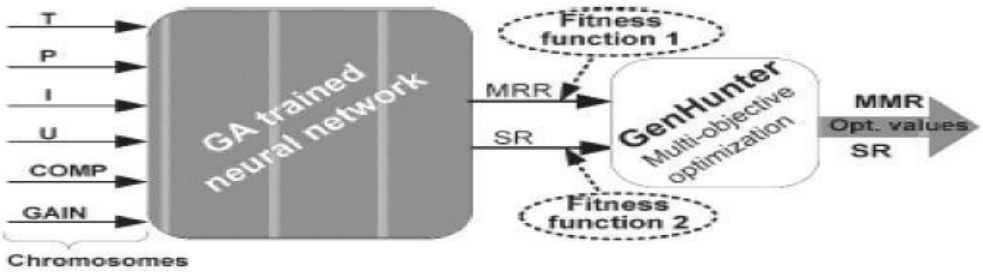


Fig. 3 includes an integrated step of the configuration of the hybrid system.

Mathew et al.[7] also published on the development of micro-EDM modeling and optimization. The MRR parameter optimization model was evaluated by ANN. A feed-in neural network has

been programmed to maximize the amount of neural cells and numbers of secret layers to better predict MRR. We assumed that RMSE's low value improves model precision. Selection of important factors in the production process is extremely important since these factors decide output. Results show that the machining response can be predicted effectively using the ANN model.

III. ARTIFICIAL NEURAL NETWORKS METHODOLOGY

ANN steps in MATLAB The basic steps used by ANN in MATLAB are presented below:

(a)Input and output data set collection

Output values are chosen in relation to the different experimental variations of input parameters obtained from the experiments. The ANN model's ability to generate data depends on several factors, such as:

- An appropriate range of input-output method parameters [15].
- the distribution of input-output dataset
- The input-output dataset presentation format to the neural network [13].

(b) Input-output dataset preprocessing

The newff' feedback propagation [8] is a network system with a background teacher,*' trainlm'* and a background weight and biazing feature,*' learngdm,'* in **Levenberg-Marquardt**. A two-layer forward feed network is used, as any feature can be approximated, and a limited number of interruptions are given in the concealed layer with appropriate neurons. Samples from the testing stage were altered to three classes, to train the neural networks with divider-and-date feature, As a consequence of the Mean **Square Error** (MSE) of validation tests, **Levenberg-Marquardt**retropropagation algorithm automatically stops training as generalizations are no longer strengthened. *Fixunknotes, removeconstantrows, mapminmax* and the input processing functions were used.

The transition feature of the i^{th} layer is **tansig / purelin[9].** The secret layer is **' tansig '** and the display layer is **' pureline '.** The functions used for output processing were *remove-constant-rows* and *map-min-max*.

(c)Network configuration and training The network infrastructure is a key element that influen ces forecasting.

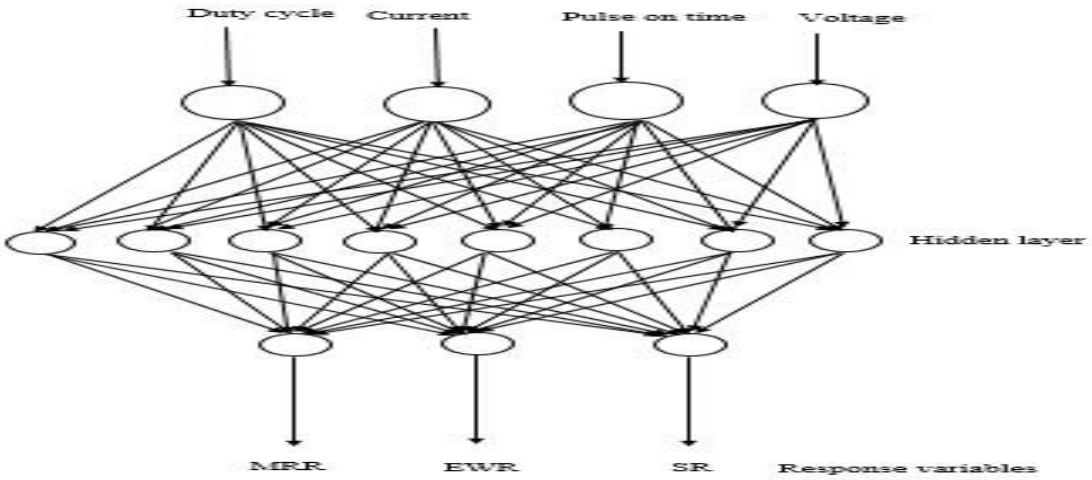


Fig. 4 Neural networking Architecture

IV. CALCULATION

The following methods can be used to test the performance evaluation of the neural network Optimum network design training model. *Equation 1* shows the formula for F2.

$$\mathbf{F2}= 1 - \left[\frac{\sum_j (t_j - o_j)^2}{\sum_j (o_j)^2}\right] \qquad \text{.....equation 1}$$

where,

tj= Target value

Oj= Output value

F2 = Coefficient of determination

j = processing elements

An ANN must be designed and implemented so that the data set results in a desirable output (direct or relaxing). A variety of techniques can be used to measure the relation strengths. In other terms, weights (using a prior knowledge) can be set directly or the net can be conditioned by feeding learning patterns to the solution and enabling the net to change / adjust weights according to a certain law.

V. RESULTS AND DISCUSSION

Solutions focused on experience can be defined by the establishment of following methods:

- **Supervised Learning**

Where the system is equipped by input quantification and matching output patterns, such input or output pairs are provided by an educational portion or the network itself, often known as if-else controlled solution. It is the principle of Supervised Learning[16].

- **Unsupervised Learning:**

Where the net (output) device has been trained in the input system to react to pattern clusters. The framework will consider statistically important features of the sample population in this model. The framework should rather establish its own interpretation of the input stimuli relative to the controlled study methods, not one group in which the patterns have to be classified.

- **Reinforcement Learning:**

The virtual system takes some environmental intervention in this process and provides some input. Depending on the environmental reaction, the learning variable judges its behaviour as good or bad, and updates its criteria. In general, the adjustment cycle is continued until surfaces with an equilibrium state are given where no additional changes are required.

An ANN represents **+/-a** system of basic processing elements (**neurons**) which display complex global behaviours, which are defined by the relations between the parameters of the processing elements and the items. Neural networking has a number of advantages, including being able to detect dynamic, non-linear associations between interacting and independent variables, being able to identify any potential correlations between predictor variables, or having multiple training algorithms available. ANN-based solutions offer great results which insides into very complex problems in the area of *estimation, data mining, mission preparation or automated distribution of capital*[10].

VI. CONCLUSION

Artificial Neural Networks are very much needed in modern scenario. So, inorder to make more advance development in future, scientists are inventing much easier algorithms. Artificial Intelligence is the future of technology. Many models of Neural Networks are presented in exhibitions to provide a rough idea of advance upcoming generations.

APPENDICES

1. ANN- Artificial Neural Networking
2. MRR- Monthly Recurring Revenue
3. TWR-Test Window Resource
4. RMSE- Relational Management System Estimation
5. EDM- Early Data Management

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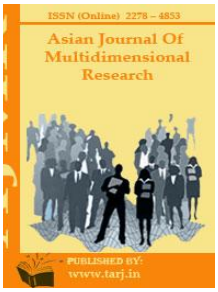

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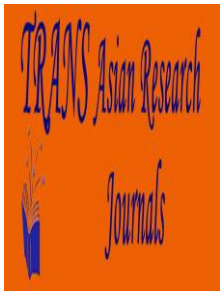

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JOINT SYNTHESIS OF ACETONE AND ACETALDEHYDE FROM ACETYLENE

Akmalaev K.A*., Fayzullaev N.I., Karjavov A****

*Satbayev University, Almaty,
KAZAKHSTAN

**Samarkand State University, Samarkand,
UZBEKISTAN

ABSTRACT

The study investigated the possibility of using catalysts based on compounds of cadmium, zinc and other elements filled with d10 orbital electrons with a number of polyfunctional properties, as well as promoted by compounds of various metals in the hydration reaction of acetylene and its derivatives. The hydration reaction of acetylene produces acetaldehyde or acetone, depending on the composition and nature of the catalyst used under the same conditions. In particular, the formation of acetylene at 360-440^{o}C in the presence of cadmium fluoride catalyst containing 20 % CdF_2, 5,0 % AlF_3, 75 % Al_2O_3 formation of acetaldehyde when reacting with water = 1: 3 - 1: 5, cadmium fluoride, it was found that when catalysts containing zinc, iron, nickel, cobalt compounds are used instead of aluminum fluoride, the process leads to the formation of acetone.

KEYWORDS: *Acetylene, acetone, acetaldehyde, catalyst, selectivity, kinetics, mechanism.*

INTRODUCTION

It is known that acetone is used in the manufacture of paints, synthetic fibers, films, black powder. It is also used to increase the octane number of motor fuels, in organic synthesis and as a solvent [1-2].

One of the main tasks of chemists is to create new methods and technologies for the production of substances that are important for the national economy, which can replace imported products using local raw materials and exhaust gases, and on this basis to increase the country's export potential. . In this regard, it is important to create catalysts for the synthesis of acetone [3-16], acetaldehyde [17-18], vinyl acetate [19-24] and vinyl chloride [25], the preparation of which is cheap and simple, and to accelerate the process. An effective solution to this problem is to create an active catalyst with high selectivity and efficiency, which is an urgent task of this research work.

The annual demand for vinyl acetate is 15,000 tons, the annual demand for vinyl chloride and chloroprene is 30,000 tons, and the annual demand for acetone is 10,000 tons. Today, Navoiazot produces 30,000 tons of acetylene per year by pyrolysis.

Currently, acetone is obtained in 2 ways: cumene method and isopropyl alcohol [26-27]. The absence of kumol and isopropyl alcohol in the country does not allow to obtain acetone by these methods.

The most alternative, cost-effective way to obtain acetone in our country is direct catalytic hydration of acetylene.

Although this method of obtaining acetone from acetylene is known in the literature, it has not been implemented on an industrial scale due to the lack of stable, active, and selective catalysts.

Among the hydration reactions of acetylene compounds, the reaction of their hydration to acetaldehyde using a cadmium-calcium phosphate catalyst has been studied in detail and introduced into industry [1-2].

However, the cadmium-calcium phosphate catalyst used in industry has a number of disadvantages: the conversion of acetylene is low, the selectivity is low, the yield is not high, the thermally unstable, and so on.

The aim of the work is to study the catalytic properties of various catalysts and to create new original catalysts for the production of acetone and acetaldehyde on the basis of local raw materials and catalytic hydration of acetylene in exhaust gases.

EXPERIMENTAL PART

Experiments on the catalytic hydration of acetylene and its derivatives in the gas phase were carried out on a reactor 25 mm in diameter and 1000 mm in height, made of stainless steel under stationary conditions. The qualitative and quantitative composition of the reaction products was studied by gas-liquid chromatography under the following conditions: stationary phase 15% Apiezon-M in Cvetochrome, column thermostat temperature 80^0C, carrier gas flow rate - helium 60 cm^3/min, detector-DIP. Quantitative analysis was carried out by the method of internal standards.

Specific surface area, crushing strength, total pore volume and ash content of the samples were determined.

The specific surface area was determined by the method of thermal desorption of nitrogen in a flow of a carrier gas - helium at the boiling point of liquid nitrogen; the experimental data were processed using the BET equation.

The phase composition of the samples was determined by the method of X-ray diffractometry, the shooting was carried out on a DRON-3M diffract meter on CuKα-radiation with a Ni-filter, the length of the X-ray radiation.

The specific surface area of the obtained catalyst was calculated by the BET method. Dispersed properties of the catalyst were studied using a scanning electron microscope (JSM-6510 LV). The catalytic activity of the obtained sample was studied using the acetylene hydration reaction.

Acetaldehyde and acetone were synthesized as follows. Acetylene was saturated with water at a temperature of 70-80^0C and at a ratio of water: acetylene = (1: 3) - (1: 5) mol was passed through the catalyst bed at 360^0C with a space velocity of 180-200 h-1. The vapor-gas mixture leaving

the reactor was cooled in a refrigerator. The reaction products were trapped in water. The catalyst contains acetaldehyde, acetone, crotonaldehyde, paraldehyde, etc. In order to maintain the degree of acetylene conversion at least 80%, the reaction temperature was raised by 100C every 20 h. After 96-120 hours, the degree of conversion of acetylene decreases to 75-70%. Then the reaction was stopped and the catalyst was regenerated in a known manner.

Subsequently, the effect of various parameters (temperature, space velocity, acetylene-wate ratio) on the acetylene conversion and acetone yield was studied.

As a result of studying the effect of temperature on the yield of acetone, it was found that in the temperature range of 360-500^{0}C the dependence between the reaction yield and temperature is extreme and at 450^{0}C the yield was considered maximum.

EXPERIMENTAL RESULTS AND THEIR DISCUSSION

We explored the possibility of using catalysts based on compounds of cadmium, zinc and other elements filled with d10 orbital electrons with a number of polyfunctional properties, as well as promoted by compounds of various metals in the hydration reaction of acetylene and its derivatives.

During the promotion of catalysts prepared by suspension on the basis of cadmium and zinc fluorides and other compounds, the formation of hydroxyfluorides with the following composition: Cd(OH)F, Zn(OH)F, $Al(OH)_2F$, $Al(OH)F_2$ studied by the analytical method and found that the formation of hydro fluorides leads to an increase in catalyst activity.

The increase in catalyst activity is explained as follows: when the catalyst is in the polymorphic-crystalline state, it retains the bound water molecules and therefore has a high catalytic activity. When the temperature is raised from 500 to 650^{o}C, the proportion of the crystalline phase increases, the amount of chemically bound water decreases, and the hydroxyfluorides begin to decompose. As a result, its activity decreases due to the decrease in the specific surface area of the catalyst.

More than 10 catalysts were tested for the catalytic hydration reaction of acetylene.

The result was a new cadmium-fluorine-aluminum catalyst promoted by zinc fluoride and aluminum fluorides for the catalytic hydration reaction of acetylene and its derivatives (Table 1).

TABLE 1.COMPOSITION AND PROPERTIES OF SYNTHESIZED CADMIUM-FLUORINE-ALUMINUM CATALYSTS (T = 723 K)

Catalyst composition, mass%	**Specific surface area, m^2 / g**	**Operating time before regeneration, daily**	**Productivity, g / kg, cat · h**	**Conversion of acetylene, %**
CdF_2 – 20 Al_2O_3 -80	220	96	110	95
CdF_2 – 15 Al_2O_3 - 85	165	120	85	82

CdF_2 – 11,2 AlF_3 – 2,8 Al_2O_3 - 86	135	140	91	90
CdF_2 – 15 AlF_3 – 5 Al_2O_3 - 80	151	155	100	92
CdF_2 – 10 AlF_3 – 10 Al_2O_3 - 80	183	130	88	94
CdF_2 – 5 ZnF_2 - 10 AlF_3 – 5 Al_2O_3 - 80	201	160	84	86

As can be seen from Table 1, the given catalysts provide high acetylene conversion. Their stability is 1.5-2.0 times higher than that of cadmium-calcium-phosphate catalyst.

The catalyst promoted by up to 5.0% aluminum fluoride has sufficient activity, mechanical strength and stability. The catalyst, which contains 10% to 20% cadmium fluoride, provides high acetaldehyde yields. When the reaction is carried out at 300-420^{0}C, the yield of acetaldehyde is 90% higher than that of acetylene, which reacts. Additional products include acetone, 3-oxybutanal, croton aldehyde, butanal, ethyl acetate and paraldehyde.

The hydration reaction of acetylene produces acetaldehyde or acetone, depending on the composition and nature of the catalyst used under the same conditions. In particular, acetylene reacts to form acetylene at 360-440^{o}C in the presence of cadmium fluoride catalyst containing 20 % CdF_2, 5,0 % AlF_3, 75 % Al_2O_3 in a ratio of 1: 3 - 1: 5. The effects of various factors (temperature, volumetric velocity, acetylene: water ratios) on acetylene conversion and acetaldehyde yield were studied.

The study of the effect of temperature on acetaldehyde yield showed that the relationship between the reaction yield and temperature in the range of 360–440^{o}C is extreme and that the yield at 400^{o}C has a maximum value.

To keep the acetylene conversion constant at 80-85%, the temperature is raised by 10^{o}C every 15-20 hours.

The cadmium-fluorine-aluminum catalyst used in this process was found to maintain its catalytic activity unchanged for 96-120 hours. The catalyst used in the reaction, which has lost its activity, resumes its initial activity after regeneration.

When cadmium fluoride and aluminum fluoride are replaced by catalysts containing zinc, iron, nickel, and cobalt, the process leads to the formation of acetone. Table 2 below shows the effect of the active components of the catalyst on the yield of the reaction products.

TABLE 2.INFLUENCE OF CATALYST COMPOSITION ON REACTION PRODUCT YIELD

№	Catalyst content, mass %	Acetylene conversion, %	Catalyst content, %	
			Acetaldehyde	Acetone
1	ZnO-15.0 CdO-5.0 Al_2O_3-80.0	86.0	12.0	67.0
2	ZnO-10.0 CdF_2-5.0 Al_2O_3-85.0	83.0	21.0	56.0
3	CdF_2-20.0 Al_2O_3-80.0	84.0	81.0	12.0
4	ZnO-15.0 ZnF_2-5.0 CdF_2-2.0 Al_2O_3-78.0	92.0	14.0	78.5
5	Ni_2O_3-10.0 Fe_3O_4-20.0 Al_2O_3-70.0	95.4	8.0	92.8

Table 2 shows that the yield of acetone in the presence of № 5 catalysts containing iron and nickel oxides is 92.8%, and the conversion of acetylene is 95.4%. When studying the effect of temperature on the yield of acetone in the presence of the newly created high-activity and high-performance № 5th catalyst, it was found that the optimum temperature for the acetylene hydration reaction is 450^{o}C.

TABLE 3. EFFECT OF VOLUMETRIC VELOCITY ON ACETALDEHYDE YIELD AND ACETYLENE CONVERSION

Dimensional speed h^{-1}	Rotation rate of acetylene, %		S, %
	General	Until acetaldehyde	
80	98.0	30.2	30.8
100	92.5	48.5	52.4
120	88.9	82.0	92.2
140	80.0	72.0	90.0
160	74.5	64.0	85.9
180	68.3	52.8	77.3
200	60.6	45.6	75.2
220	50.5	36.2	71.7

The effect of temperature, volumetric velocity, acetylene: water ratio, etc. on acetaldehyde yield was studied. Acetylene: The catalyst stability was found to be 90 hours at a water-to-water ratio

of 1: 3, and the maximum acetylene conversion was 80%. Acetylene: When the water-to-water ratio is 1: 5, the catalyst is continuously active for more than 140 hours. At this time, the conversion of acetylene is 90%.

When the effect of temperature was studied in the range of 300–440^{0}C, an increase in acetylene conversion and a decrease in acetaldehyde selectivity were found with increasing temperature.

The study of the effect of temperature on acetaldehyde yield showed that the relationship between the reaction yield and temperature in the range of 360-4400C is extreme and the yield has a maximum value at 400^{0}C.

To keep the acetylene conversion constant at 80-85%, the temperature is raised to 10^{0}C for 15-20 hours.

The influence of temperature, catalyst size, reactor parameters and catalyst bed height on the technological parameters of the process was studied.

The effect of the height of the catalyst layer on the conversion rate of acetylene is shown in

FIGURE 1

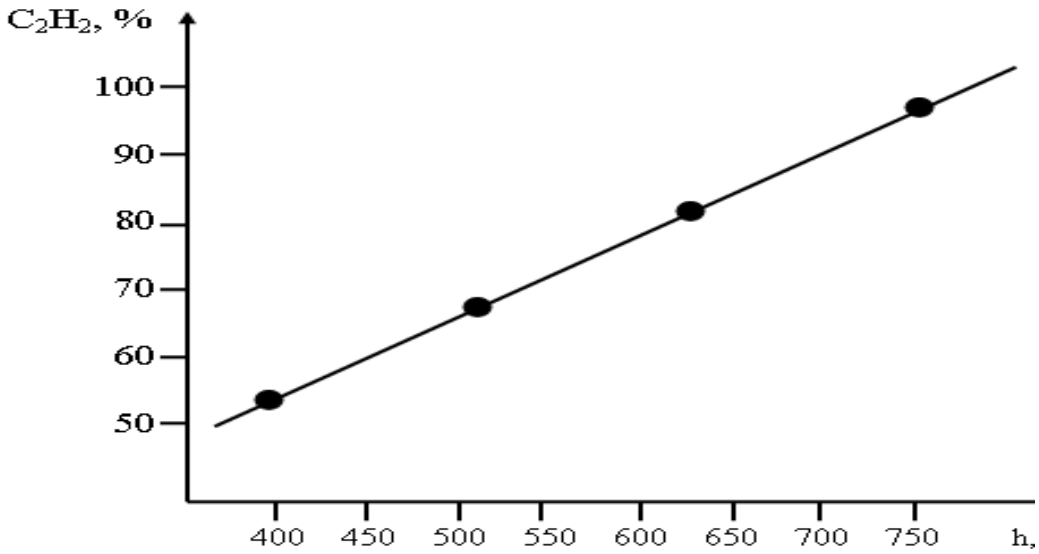

FIGURE 1. EFFECT OF CATALYST LAYER HEIGHT ON ACETYLENE CONVERSION RATE

As shown in Figure 1, the acetylene conversion increases with increasing catalyst layer height, indicating that the reaction proceeds in the internal diffusion field.

The ratio of the height of the catalyst layer to the diameter of the reactor is 50-60, and the volumetric velocity of acetylene is 50-60 h^{-1}. The effect of temperature on acetone formation yield and acetylene conversion is shown in Table 4.

TABLE 4. THE EFFECT OF TEMPERATURE ON THE YIELD OF ACETONE AND THE CONVERSION OF ACETYLENE

(C_2H_2: H_2O = 1: 5 mol, cat: №5)

Temperature, ^{0}C	The product of the formation of acetone, %	Acetylene conversion, %	Selectivity, S %
350	47.0	62.0	75.8
375	59.8	75.0	79.7
400	70.9	85.0	83.4
425	84.8	90.0	94.2
450	65.0	94.0	63.8
500	52.0	97.8	53.2

The table shows that the yield of acetone increases, the selectivity increases to 698 K. As the temperature rises above 698 K, the yield of acetone and the selectivity of the process decrease as the acetone is converted to other substances.

It is known from the literature that cadmium and its compounds have a negative effect on the human body. Cadmium compounds are highly toxic (PDK 0.1 mg / m^3).

Therefore, we investigated the catalytic activity of cadmium-free compounds in acetylene hydration reactions.

Kinetics and mechanism of the catalytic hydration reaction of acetylene. In order to create a scientific basis for the process of obtaining acetone by hydration of acetylene, it is necessary to study the kinetic laws of the reaction in the selected catalyst and to provide diagrams of the mechanism of the processes based on them.

It is known from the scientific literature that the kinetic laws of this process have been little studied in the presence of a small number of catalysts and there is no single view on the mechanism of the process. Based on this, a number of experiments were performed to study the kinetic laws of the catalytic hydration reaction of acetylene. To study the kinetic laws, the effect of the partial pressures of water and acetylene on the rate of acetone formation at a temperature in the range of 400–475^{0}C and a volumetric velocity (in acetylene) of 120 h^{-1} was studied.

The effect of the partial pressures of the reagents on the kinetic laws of the process was carried out by changing the partial pressure of one reagent while keeping the partial pressures of the remaining reagents constant. In order to keep the linear velocity of the initial mixture constant, the required amount of pure argon gas was sent to the reaction zone (field). The volume of the catalyst was adjusted accordingly to maintain a constant rate of acetylene flow. A study of the effect of the partial pressures of acetylene and water on the kinetic laws of the reaction found an increase in acetone yield with a decrease in the partial pressure of acetylene. At this time, the total conversion of acetylene increases, while the selectivity of the reaction relative to acetone decreases.

It is known from the literature that the interaction of polar acetylene molecules with water molecules results in the formation of unstable vinyl alcohol, which is isomerized to

acetaldehyde. The resulting acetaldehyde reacts first with aldol and then with croton to form 3-oxymoid aldehyde or croton aldehyde. 3-oximoy and croton aldehydes react with water to form hydrates.

Based on the results of experiments and the qualitative and quantitative composition of the reaction products, we propose the following mechanism of acetone formation in the presence of a given catalyst:

$$CH \equiv CH + H_2O \rightarrow CH_3CHO$$
$$2CH_3CHO \rightarrow CH_3CH(OH)CH_2CHO$$

Hydration of 3-oxybutanal produces trihydric alcohol and dehydrogenation of the resulting product produces acetoacetic acid:

$$CH_3CH(OH)CH_2CHO + H_2O \rightarrow CH_3CH(OH)CH_2CH(OH)_2$$
$$CH_3CH(OH)CH_2CH(OH)_2 \rightarrow CH_3COCH_2COOH + 2H_2$$

Acetoacetic acid, in turn, decarboxylates under conditions to form acetone:

$$CH_3COCH_2COOH \rightarrow CH_3COCH_3 + CO_2$$

The above method of obtaining acetone is a promising method for Uzbekistan.

CONCLUSION

The possibility of using catalysts based on compounds of cadmium, zinc and other elements filled with d^{10} orbital electrons with a number of polyfunctional properties, as well as promoted by compounds of various metals in the hydration reaction of acetylene and its derivatives was studied. The hydration reaction of acetylene produces acetaldehyde or acetone, depending on the composition and nature of the catalyst used under the same conditions. In particular, the formation of acetylene at 360-440oS in the presence of cadmium fluoride catalyst containing 20 % CdF_2, 5,0 % AlF_3, 75 % Al_2O_3 formation of acetaldehyde when reacting with water = 1: 3 - 1: 5, cadmium fluoride, it was found that when catalysts containing zinc, iron, nickel, cobalt compounds are used instead of aluminum fluoride, the process leads to the formation of acetone.

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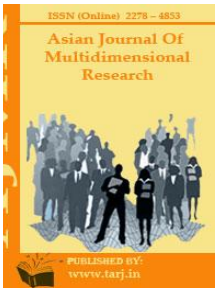

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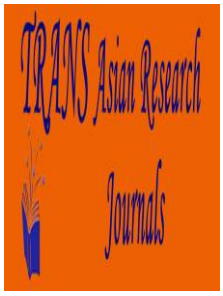

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THE ART OF MUSICAL CULTURE IN MEDIEVAL PERIOD IN CENTRAL ASIA (V-XV CENTURIES)

Ashurov Marufjon Abdumutalibovich*

*Andijan State University,
UZBEKISTAN
Email id: maruf79@bk.ru

ABSTRACT

In this article, the author provides information about the stages of development of the art of music culture in Central Asia during the Middle Ages (V-XV). During this period, great scientists, poets, musicians: the famous mathematician and astronomer Ahmad Fergani, one of the first musical treatises in Arabic, the founder of the science of algorithms Abu Abdullah Muhammad Khorezmi became famous. It is known that Muhammad Khorezmi was the head of the Mamun Academy (Bayt ul-Hikma) in Baghdad.

KEYWORDS: *Central Asian, slavery, state, East, musician, singer, fine arts, music, drums, doira, tanbur, maqom, kumush lagan, Turkish legends.*

I.INTRODUCTION

From the 4th century AD, slavery in Central Asia was gradually replaced by a feudal system. The Turks living in Central Asia began to call the last part of their state - Kokand. From then on, the process of coexistence of Turks and local peoples of Eastern Iran began. The period from the IV to the VII centuries was characterized by a high level of development of culture and art, including music.

The name of Barbad (or Fakhshabad), a great musician and singer of Central Asia, known throughout the East and later described in the classics of Oriental literature, became famous. Barbad, who lived in Merv (modern-day Mari in Turkmenistan), served in the palace of Khisrav, a Sassanid dynasty of Iran, in the early 7th century. According to historians, Barbad composed hymns and historical songs, songs about military victories. Nizami, a classic of Azerbaijani literature, wrote in his epic "Khisrav and Shirin" about the extraordinary influence of Barbados on art lovers.

Numerous monuments of fine arts provide information about the weapons of this period and the traditions of music. These include the bright patterns found in ancient Panjikent. There is a dance scene to the accompaniment of a double-sided drum and a circle, and a bright image of a woman

performing a ceremonial dance at a funeral in an earthenware vessel. The silver bowl is decorated with a hunting scene, a banquet with songs and dances.

They inherited some elements of the local music life. Many epic Turkish legends, which later entered the cycle "Kitobi Korkut", influenced the formation of the epic in the peoples of Central Asia.

Thus, folk art and the local professional tradition served as the basis for the birth of major professional works in the oral tradition in the future.

It is no coincidence that some common maqom melodies are called in Turkish, for example, "Avji Turk". Probably, the custom of reciting lamentations in a declamatory manner by special narrators standing on top of the body of the deceased is inherited from the ancient Turkic tribes. Probably, Uzbek bakhshis used the methods of expression of Turkish folk singers, as can be seen in the diversity of Uzbek folklore, its melody, melody and especially its rhythmic structure.

Thus, by the VII-VIII centuries, the traditions of local music became clear, and a form of oral traditions of folk and professional music emerged.

II.METHODS

The annexation of Central Asia to the Arab Caliphate was also to some extent positive. The Arabs, in turn, learned a lot from the locals in the field of music. According to A. Isfahani's "Book of Songs" written in Arabic, many Central Asian melodies were used by Arabs. For example, the first Arab singer, known as -Musadjiq, visited Central Asia (along with other countries), chose a variety of melodies and created a system of song performance on their basis. Another singer, Ibn Muqriz, was the first to learn Arabic verses from Central Asian singers.

Al-Farabi's study of the vocal cords of various instruments and his emphasis on the Khorasan tanbur testify to the importance of local musical instruments.

Musical life in the Samanid state (IX - X centuries) of the peoples of Central Asia. Due to the active struggle against the oppression of the invaders, in the ninth century power passed to the Samanid dynasty. During the Samanid period, Central Asia was not attacked by foreign invaders for almost a hundred years, which allowed the development of the country's economy and culture.

During this period, great scientists, poets, musicians: the famous mathematician and astronomer Ahmad Fergani, one of the first musical treatises in Arabic, the founder of the science of algorithms Abu Abdullah Muhammad Khorezmi became famous. It is known that Muhammad Khorezmi was the head of the Mamun Academy (Bayt ul-Hikma) in Baghdad. Legend has it that when there was a discussion among scientists about healing methods, one of the students asked Khorezmi, "What do you prefer in treating people, medicine or surgery?" Then the words of the teacher "in my country, the healing power of music outweighs both of them" went down in history.

From ordinary people and craftsmen of Khorezm to the highest class, he was close to the art of speech. According to Beruni, Muhammad Khorezmshah (Ma'mun II) was a king who had a deep understanding of music and poetry, and made delicate remarks to the poets and musicians around him. The history books also mention the names of scholars who have made a name for themselves in the field of musicology as part of the Mamun Academy.

Khorezmshah Sultan Muhammad used to find pleasure in barbat (ud) by playing navba (series of works). Even before embarking on important state affairs, Khorezmshah began to prepare himself mentally, play melodies, and adjust his mind and emotions. The encyclopedic scholar FakhriddinRazi, who was awarded the title of "The Great Teacher - Sheikh Sharif", has a special place in the history of musicology. The musical part of his encyclopedia Jame 'al-Ulum is a very important stage between Farobi and Ibn Sina and later. Razi's treatise differs from the Arabic works of Farobi and Ibn Sina in that the use of phrases in local languages, such as the ancient name of the oud, was "barbat."

Numerous sources, such as the ones mentioned, show that Khorezm is a place where musical traditions have long been respected and developed. Legend has it that "before Genghis Khan destroyed Old Urgench, the capital of Khorezm, in ancient times, most of the people who lived in the city of Old Urgench chose music as a profession and a profession. It is estimated that in the city of Old Urgench alone, there are about a thousand people who make a living by selling donkeys.

Farobi lived and worked with the great Central Asian scientists of the X-XI centuries Abu RayhanBeruni (973-1048), Abu Ali ibn Sino (980-1037), who made a great contribution to all the sciences of the Middle Ages. Bukhara became famous among the cities of the Samanid state. Bukhara became a center of economy and culture, literature and music developed. The main genre in the works of court poets and musicians was a poem that praised and honored the ruling personalities. The prologue would be accompanied by a musical instrument. The instrument could sometimes be performed separately from the poem on any intimate night. Nasib is an independent form of musical and poetic art, performed by a musician, a singer, a mutrib.

Along with hymns and musical poems, songs expressing advanced social views and moods were also created. Sometimes in comedy songs, poets and musicians laughed at the greed and contempt of kings and officials, and at the jealousy, hypocrisy, and bigotry of priests. Often, the bold days calling for freedom would be hidden behind irony and ridicule. Such songs became very popular, and authors such as Rudaki, a great master of poetry and a brilliant musician who lived in the first half of the tenth century, became famous.

By this time, there was a growing interest in ancient epic myths and legends, which were depicted only in the folklore. Professional heroic epics were created on the basis of eleven syllables, two verses of which rhyme with each other. Firdavsi successfully used the epic of the peoples of Central Asia in the creation of his wonderful epic "Shohnoma". This work is a rich source for the study of music, musical life, musical instruments of that time:

Immediately the kushka was filled with dear guests,
The heroes, the drunkards, the cheerful,
Dust collectors
Gulyuz is also a maid.
Faces like the Roman king are pink,
Hearts cry with joy in the magic of dust.

At that time, stringed instruments such as the harp and oud, as well as wind-blown flutes were widespread. Five or six pairs of stringed oud were used. The oud was played with a plectrum like a flexible feather. Darvishali Changi described ud as "the king of all musical instruments." The stringed instrument mentioned in the Shahnameh was also common. The 14th century poet Hafiz later wrote about his love for the sounds of dust, flute and rud. The circle was also wide. His

image is often found in various miniatures and other manuscripts on the "Shohnoma". Rudaki's poems are reminiscent of dust and four-stringed barbados.

III.CONCLUSION

According to the nature of Farobi's voices, musical instruments played different roles: “There are musical instruments for war, their sound is loud and sharp. There are special musical instruments for parties and dances, weddings and merry gatherings, as well as for love songs. The voices of some are sharp and melancholy; In short, they are so many, so diverse, it's hard to list them all”. Thus, during the Samanids, the performance of musical instruments developed on a large scale.

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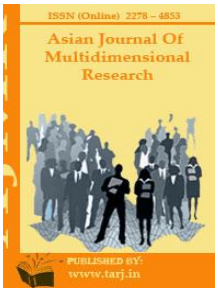

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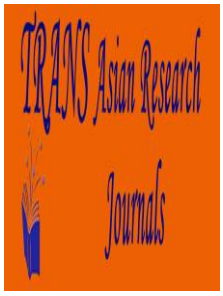

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IMPROVING THE DIDACTIC CAPACITY OF PRIMARY SCHOOL PUPILS IN MASTERING THE LESSONS

Khojaniyazova Inkar Jumanazarovna*

*Assistant Teacher
Department of Primary Education
Nukus State Pedagogical Institute named after Ajiniyoz
UZBEKISTAN

ABSTRACT

This article focuses on the problem-solving process of elementary school pupils' development of thinking, thinking of primary school pupils of didactic games opportunities for capacity building. The knowledge acquired in the later stages of mastering put into practice, achieve certain results, complement, enrich, is required to have its own independent point of view. This is it a problem-solving approach is needed for mastery levels. Problem-based learning is unique to the audience requires a psychological approach. A teacher and a scholar for that no psychological barriers between recipients, warm psychological environment must be created.

KEYWORDS: *Educational Games, Detection Stage, Stage Of Understanding, Thinking Stage, Discuss The Problem, Mental Activity, Peaceful Games And Independent Work.*

INTRODUCTION

After Uzbekistan gained independencehas a unique path of economic and socio-cultural development.Especially to radically change the education system, to form a harmoniously developed person has become one of the pressing issues that will determine our destiny tomorrow. Uzbekistan is independent in the context of major reforms the presence of like-minded young people is a requirement of the times because they have a personal outlook to the success of the community will be able to achieve. The head of the policy pursued in the republic one of the factors is also a deep-thinking, independent-minded, talented is the development and upbringing of individuals. Educational innovation is only about giving pupils new knowledge rather than a system of attitudes toward society, the state, nature, and labor also includes changes.

MAIN PART

The primary purpose of problem-based learning technology in the primary grades is to educate pupilsincrease independence and activism, develop thinking, mastered strengthening the application of knowledge in practice. The pedagogical and psychological literature deals with the

scientific and theoretical basis of problem-based education when it is considered as a method, principle, or system of education occurs. No matter what you call problem-based learning, it's basic feature - increase the mental activity of the learner, independent creative research, is about discovering new knowledge, skills, and competencies for oneself.

The educational process is organized on the basis of modern pedagogical technologies, there are several interrelated stages in the acquisition of knowledgeto convey ready-made knowledge to the minds of pupils, to memorize, memorization, recollection, narration, written expression represents the level of knowledge, understanding. At these levels, a creative approach is not required from the learner. The knowledge acquired in the later stages of mastering put into practice, achieve certain results, complement, enrich, is required to have its own independent point of view. This is it a problem-solving approach is needed for mastery levels. Problem-based learning is unique to the audience requires a psychological approach. A teacher and a scholar for that no psychological barriers between recipients, warm psychological environment must be created. Then the rules for today's training will be adopted. This process is with all pupils in the audience done together. The teacher praised the effectiveness of today's lesson what rules pupils must follow to ensure asks the audience. Here's how to put one together for use with your training it is recommended to follow the rules: not to speak; to be able to hear each other; the ability to listen to each other; one-on-one speaking skills: raising hands follow the rule; patience, mutual respect.

In order to organize the lesson in a problematic way, first of all, the student should be able to debate, express their opinions freely, and be critical should be ready. It depends on the problem concepts are revealed.

Then the problem is clarified and known conclusions are drawn. This process is expressed in feedback.Active participation of students in problem solving to ensure that the process is conditionally divided into the following three stages you can:
- *detection stage;*

- *stage of understanding;*

- *thinking stage.*

First, the concepts that pupils have in the identification phase are identified and their attention is drawn to the problem. Organize the detection phase the following questions can be used effectively:

What do you know about this?

What do you want to know about this?

Why is this important? ...

Second, in the cognitive phase, the main goal is the dynamics of the reading process learning new skills. That's it understanding and solving the essence of the problem. At this stage the use of various active methods of teaching gives good results. Including, create micro groups, organize discussions, and ask questions in the following order you can:

Do you have any new information?

What is your opinion on this issue?

Which aspect impressed you the most?

What do you think is the significance of this?

What do you think will be the result?

Third, in the thinking phase, the problem is solved and feedback is given. To engage pupils in thinking it is effective to ask the following questions:

How do you feel about that?

What new ideas came up?

Can you justify your opinion?

In answering these questions, pupils should try to explain new concepts. The resulting ideas make sure it's flexible and colorful.

A unique psychological approach to the learning process encourages pupils to think independently and express themselves freely. At the same time, it creates the conditions for a creative solution to the problem. There are several active methods that can be used.

Pupils in small groups of five or six separate and discuss the problem freely. For example: in this group and each member or individual pupil they designate expresses his thoughts. First of all, there are certain conditions for the formation of an independent opinion the creation is expedient, although it is clear that the formation of an independent opinion there is no formula.

In general, the problem of learning is caused by pupils a controversial issue that needs to be addressed through independent research understood. The controversy is a problem, a problem and requires pupils to think independently.

In elementary school native language classesdidactic games and their features related to independent thinking. For example,

Peaceful games

"I'll check it myself." It's a small game the dictation text is selected and it is organized in the introductory part of the lesson. Teacher writes small dictations to pupils. All pupils write, when they have finished, the teacher writes the dictation on the board. Position before dictation the teacher opens the curtain if it is written on the board and covered. Pupils look at it and check their dictation.Such dictations can be used even in the alphabet era, the teacher first consists only of letters and then (after the introduction of consonant letters) syllablespupils' dictation if he writes dictation in different variants as follows skills are formed.

"The story." The teacher writes a few words on the board. Pupils independently write a story with these words. In the process, as their vocabulary grows, so do their sentences and soundscreative and independent thinking skills are formed.It is up to the pupils to encourage the teacher from time to time builds confidence. This game is for extracurricular activities can also be used in clubs.

"Who is he? What is this?". There are a number of items on the table. The teacher describes one of these subjects. Pupils are these characters based on what they are talking about.The advantage of this game is that it is played by students during the lesson to concentrate, to rest his hands, or with new sounds can be used in the process of introducing a new topic. This game develops pupils' intelligence, critical thinking and independent thinkingallows the formation of skills.

"Wrong sentence." This game is based on pictures. Teacher's picture also uses sentences that are not relevant to the picture. Pupils need to find the sentence carefully. Ask pupils to be smart, picky, observant, and playful during this game attention is required. This game is not only for native language classes, but also for extracurricular activities can also be used.

"No way".During the game, the teacher reads the text.A sentence or phrase that describes events that pupils may not have experienced should find.
It's a game of humor, ingenuity and ingenuity requires observation and storytelling skills also helps to shape. This game is played several times and is then independent of the pupils can also be commissioned to create such stories.

"Find the letters." Play this game in oral or visual testsand colored rectangular paper used to locate it can be transferred. You will get two different colored rectangles. The teacher reads the words. And pupils have to find it on their own the sound of the same color is replaced by the second sound colored paper.

For example, the word "a" in the word "ona" mark the location of the sound with colored paper or draw a diagram of the sounds.

"Read it." The teacher tells the students in written and capital letters shows capitalized words. Pupils read. Fast and students who read correctly are encouraged. Through similar games pupils' reading techniques are formed. This game is also in the process of "Alphabet" can be used. Consonant sounds are only sounds when they have not yet been studied, and later through syllables, words, and phrases.

"Go on." In this game, the teacher begins the story. Pupils do it continue independently. It involves pupils being creative and thinking independently develop the ability to write creative works such as essays or essays develops and vocabulary in.

"Travel". Pupils can travel from school or home to a specific location will be asked to describe the route. Pupils for a few days observe the "object" and describe it orally. It requires meticulousness, alertness, observation, attention to the environmentfaith in the Motherland, love for nature through this game can be brought up. In addition, pupils' speech develops, vocabulary wealth increases, independent thinking skills are formed.

"Mysterious word". The teacher tells the pupils how many words are in the same box tells you to find out how many times it was written. The pupil with the most points wins. The Mystery Word game is the first way for pupils to solve puzzles introduces information and helps to broaden their horizons will give.

"It's mine." The teacher gives the pupils letter cards spreads. Each card has a different letter. After that the teacher starts reading the words. On the card in the pupils' hands "It's mine" as soon as they hear a word that starts with a letter must answer. The teacher reads the words faster, the pupils are smarter listens with.

Didactic games are mainly performed in 2 stages:

Step 1: Discovering Your Purpose prepares Preparation is the process by which students learn what they need to learn prepare their weapons in advance, independent of the subject matter get acquainted, review textbooks and other theoretical materials.

Step 2: In this step, students are explained the essence of the game, the roles will be given, resources will be introduced and a game will be played.

The role of the teacher is very important in conducting didactic games. Teacher conveys the game and its rules to pupils in a ready-made way and in the gameworks directly with them in direct participation, various requirements serves as a model for implementation, provides information.

CONCLUSION

In short, problematic question in elementary school subjects problem-solving through assignments and pupils involvement in problem-solving is known to engage students in learning activities serves as a goal-oriented, creative approach to the learning process, andcreates favorable conditions for the development of the level of thinking. Each of the exercises in the elementary school subjects, issues and stories are a unique puzzle for pupils. Solve them a creative approach to the organization of the process is also to the development of mental activity serves. Reproductive, reconstructive and creative types of independent work differ is high when a number of requirements are met in their implementation results can be achieved. Elementary school pupils are young and psychologically challenged learning from games that go out and activate their activities also need to be used in the process and they are the level of thinking of the pupils is an important tool in development. If educational games are conducted in accordance with the established rules and requirements, pupils will be able to think effectively influence teaching based on an innovative approach to development no doubt.

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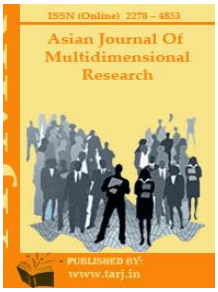

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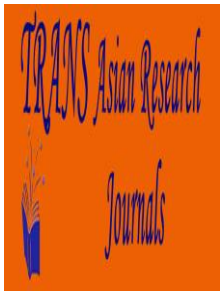

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CONCEPTS OF THE COMMUNICATIVE-CUMULATIVE METHOD OF LANGUAGE LEARNING IN FOREIGN PHILOLOGY

Jalgasbaeva Gulnaz Jetesbaevna*

*Teacher

Nukus State pedagogical Institute named after Ajiniyaz,

UZBEKISTAN

E-mail:gulnazzalgasbaeva@gmail.com

ABSTRACT

The article deals with the communication process of language in foreign language teaching opinion on the communicative-cumulative methodology within the functions performed and the basic principles of this methodology are explained. All of the above gives reason asserts the need forcognitive or cumulativecomponent in the structure of communicative foreign language competence.In the methodologicalthe literature widely uses terms"Communicative-cognitive","Cognitive-activity" as a methodand how the approach is.

KEYWORDS: *Communicative-Cumulative Methodology, Language Functions, Mental Structures, Minimum, Principles Of Teaching, Approach, Method And Techniques Of Teaching, Competence.*

INTRODUCTION

Nowadays more and more gain popularity culture-oriented approaches aimed at co-learning the language and cultures that determine introduction to the scientific circulation of the methodology FL training appropriate competences (for example, socio-cultural, intercultural communicative-cognitive, lingo cultural). A generalizing model of these competencies advocates cultural competence that contributes to secondary socialization of the personality. Active development and implementation culture-oriented approaches to the educational process in recent years due to the need studying the cultural component in nominally and functionally, i.e. co-learning language and culture as a means communication and introduction to the national culture as a process and result secondary socialization of the individual. In that plan is of particular interest communicative-cumulative technique co-study of language and culture.

MATERIAL METHODS

Professor D.D. Jalolov in his presentationsat scientific and practical conferences stressed the importance implementation communicatively - cumulative teaching method foreign culture, justifying this by what language / speech does nominative, communicative and cumulative function. [2008; 2009] In this regard, within the framework of this article I would like to

develop ideas about communicative-cumulative technique training in foreign languages within the following questions:

1. Justify objectivity the formulation "communicative cumulative" teaching method, since Professor D.D. Jalolov gives just an explanation of the importance of this method and delineates problems for methodologists, associated with 1) identifying difficulties in teaching culture; 2) the definition educational minimum concepts, 3) creation of a dictionary of cultural terms, 4) the development of language teaching technology and culture on the basis of the communicative-cumulative method, etc. [2009].

2. Discuss the essence of the communicative-cumulative methodology,answeringthe question is a method or approach tolearning FL?

3. Consider objectivityuse of the term "communicative cumulative competence".

4. Determine the principles of the communicative and communicative methodology learning.

There is no doubt that the priority the function of language is communicative but important nominative and cumulative functions also cannot be denied. Cumulative the function was reasonably justified supporters of linguistic and cultural approach. The essence of this function is what exactly in the language accumulates cultural experience acquired by him for long years of its existence. Wherein accumulation and preservation of cultural experience is organized in the form of mental constructs (concepts, frames, gestalts, scripts). This one nationally specific information, which is stored in memory and contributes creation and interpretation of meanings.

MAIN PART

From a communicative and cumulative language functions essential properties of language badge favors collection and in formativeness i.e. obtaining information, storing it in memory and its use during interpretation and production of meanings. At the same time, the nominative, communicative and cumulative language functions implemented synchronously, complementing each friend in communication. For example, during cognitive activity within studying foreign language the following levels.

1-FIG. LEVELS IN THE COGNITIVE PROCESS

Rulelevel	Performing speech actions in accordance with the rules
Valuelevel	Awareness and understanding of the meanings used by language units
Speechlevelactivities	The scheme of constructing a statement (logic of statement, evidence base)
Culturologicallevel	Awareness of how well the presentation corresponds to cultural norms of a native speaker
Cognitivelevel	Awareness by trainees of the cognitive strategies, their effectiveness, as well as the ability to assess your Linguistic, speech and cultural experience.

It is at these levels thatimplementation of all functions of the language in communicationand the success of mastering educationalmaterial in terms of collection and in formativeness as a certainlist of knowledge, skills and abilities,

Reflected in the communicativeforeign language competence.Let's turn to the list of skills described by E.N. Solovova [2008] which, on our opinion directly correlate with collection and information content.

Ability to work with texts:

- find the information you need in various sources;
- check the degree of reliability information involving additional sources;
- work with the help desk books / text; - group information based on the specified signs;
- fix the necessary information in the formrecords, abstracts, keywords, plan, Synopsis, etc.;
- understand information at the levelcontent and meaning.

Skills of producing own text:
- create, name, save, archive collected information;
- create texts based on read using links and citing sources.

As can be seen from the specified skills onthe level of reception and production of texts,a large role is played by the cumulativeaspect in working with information on itsprocessing and storing in memory andreferences to mental structures forreproductions and production of texts.All of the above gives reason asserts the need forcognitive or cumulativecomponent in the structure of communicative foreign language competence.In the methodologicalthe literature widely uses terms"Communicative-cognitive","Cognitive-activity" as a methodand how the approach is. In our opinion, the concept"Cumulative" in lingo didactic plan duplicates "cognitive" and in the sametime it correlates with the activityaspect, because throughcommunication learners learn about the world, i.e.acquire certain knowledge,skills and abilities.Besides, most vividly cumulative function language as storage of knowledge and transmission from generation to generation ‘manifests itself on the level of assimilation and use culturally-labeled language units and behaviors required for interpretation and production of meanings in discursive activity. Nevertheless, cumulative goes in integrity with the nominative function of the language.
Hence using the term "communicative-cumulative competence "is appropriate, but cumulativeness must be perceived from a conceptual perspective, and cognition and met cognition. In this case communicative-cumulative function corresponds to the process side. Epistemology - the growth of knowledge as continuous structuring process knowledge through certain thought patterns arising in interaction with the surrounding world or from information received in the course of communication. Thus, the role of the nominative case, communicative and cumulative foreign language components communicative competence is great and communicates directly with the system values or knowledge and skills that must accumulate in the mental structures in the form of two thesauri, described by I.I. Khaleeva. For confirmation of these claims we quote the words of N.D. Galskova: to “Understand any phrase or text, means to let her through your thesaurus, correlate with your knowledge and find appropriate content place in the picture of the world "[2000] World views are universal for representatives a certain community or ethnic group, and background knowledge of the producer must is in complete correlation with background expectations of the recipient.

It is known that the amount of information (linguistic, speech and sociacultural material) is limited by software requirements that increase; either expands from one stage to another stage of training. However, during the lesson the teacher / teacher can enter additional information

(concept maximum) depending on the degree of complexity of the material and cognitive level of trainees in assimilation of this material.

Therefore, the term "method" can have both wide and narrow the context where it is broadly understood is associated even with the approach, and in the narrow he can approach and receive. For example: in a broad context Communicative Language Teaching can perceived as both an approach and a method learning; and in the narrow context of project research, problem-solving, and even brainstorming are considered both methods and and teaching techniques. For example project research, problem-solving and brainstorming usually presented as tasks in English textbooks.

How a consequence of this, in the foreign method sometimes there is a confusion of concepts, method and techniques of teaching. Hence, communicative-cumulative method can be considered at the level approach and at the reception level.

Now let's try to define the basic principles of communicative cumulative techniques. On our view of the principles of cumulativeness can be attributed:

1. Integrity of the nominative, communicative and cumulative functions of language in communication that promotes mastery of linguistic and speech material, implementation communication and provision mutual understanding.

2. Nominative and functional integrity for the presentation of linguistic and cultural phenomena and definitions concept-minimum [Green, 2001], since only the nominative approach makes it impossible to determine categories or units required for communication and implementation communicative-cumulative methodology learning, i.e. sufficient material in pragmatic plan. Therefore, withinpragmatic approach to learning (covers discursive and functional competence), steel take into account the expressive, referential, phatic, metalinguistic andcognitivelanguage functions.

3. Collection and storage of information in the form of mental structures (concepts, frames, gestalts, scripts / scripts) or thesauri (library of values and skills in interpretation, reproduction and production of texts), or a set subjectivisation of values, norms, representations, ideological attitudes) and objectification (activities, ways of behavior, language, artifacts, learned and used in communication).

4. Information content, which is defined in two dimensions: 1) trainees need the material which brings new knowledge sufficient for communication, 2) vocabulary and rules operating them, information cultural studies should perceived as sources of meaning.

Learners should be informednot about abstract concepts, but taking into account themsemantics and real means of expressionthoughts, desires, feelings and attitudes towardsanything in accordance with the norms andrules of genre and studiedlingo culture.

CONCLUSION

Thus, within the framework of this article you can find out the answers to allearlier questions. Relevancedesignated provisions, principlescommunicative-cumulative methodologywe see in the selection of a minimum of "meanings"and in the development of technology for the formationmental structures necessary forcommunication in accordance with the programrequirements.

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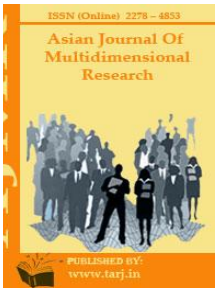

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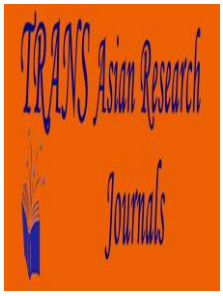

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STAGE COSTUME FEATURES ENSEMBLE "BAHOR"

Makhmudova Malakhat Makhmudovna*

*Senior Lecturer,
Choreography Department
Honored Worker of Culture of the Republic of Uzbekistan,
State Academy of Choreography of Uzbekistan
Tashkent, UZBEKISTAN

ABSTRACT

The article reveals the features of costume design of mass and solo dance compositions of the ensemble "Bahor". The dances of the ensemble "Bahor", and with them their costume design, became an aesthetic canon, a classic of Uzbek choreographic art. The basic principle in creating the costume became an organic unity with a dance design. In the costumes of the ensemble "Bahor", persistent signs of a traditional women's costume are preserved, such as ensemble completeness, layering, ethnic jewelry decor, and the brightness of color. At the same time, the costume of each dance has its own look, reflecting the artistic image of the choreographic composition.

KEYWORDS: *Choreography, Music, Dance, Ornament, Rhythm, Decoration, Gamma, Attribute, Color, Stage, Movements, Costume, Performer, Ensemble, Oeuvre, Combination, Composition, Light, Harmony, Textile, Sketch, Study, Traditions*

INTRODUCTION

The creativity of the legendary ballet master M. Turgunbaeva determined the development paths of the Uzbek folk-stage dance art. One of the most significant achievements of M. Turgunbayeva is the creation of the national dance ensemble "Bakhor". Among the solutions that have created the unique creative image of the ensemble "Bakhor" is the stage costume, which has become one of the facets of the integral artistic concept.

The dance costumes of the "Bakhor" ensemble are filled with emotional sound, they are distinguished by sophistication, decorative saturation and richness of design solutions. Each dance look is unique as it corresponds to a specific imaginative concept. For the stage costume of the "Bakhor" ensemble, it was fundamentally important to preserve the national originality, ethnic characteristics of clothing, and at the same time, the costume of each dance had its own appearance, reflecting the figurative content of the composition.

Differences in the geographical, climatic and historical conditions of the territory of Uzbekistan have caused a wide variety of local differences in traditional folk clothing. The common style features of the Uzbek traditional female costume include: straight cut, considerable length and width of clothes, layering, an abundance of all kinds of ornaments.

Without violating the standards and canons of the national women's costume, M. Turgunbaeva modernized it, making it more convenient for dancing. The costumes of the "Bakhor" ensemble retained the traditional combination of national women's clothing, which was formed in a combination of a dress and a camisole (or nimcha).

Also, the traditions of headdresses in versions of headscarves, tillyakosh, peshonabanda and others were unswervingly observed. Sometimes the authors of the costume emphasized regional differences or, on the contrary, gave the costume national features.

Thus, the dances "Andijan polka", "Byet", "Minx" are dressed in an ethnically specific costume, where the Fergana locality is emphasized by a skullcap and khanatlas cloth, but a number of dances are "dressed" in costumes of a generalized nature, where the national origin is almost not indicated (waltz " Bakhor ").

Mass dance waltz "Bakhor" was staged by M. Turgunbaeva in 1958 and became the hallmark of the ensemble. Color is an important organizing principle of the whole composition of the “Bakhor” dance, emphasizing the pictorial beginning of the choreography.

Light pink colors of airy nylon combined with green vest - this is the general color scheme of the costume, giving rise to direct associations with a blooming spring garden. Blossoming almond branches are drawn on the two wedges of the upper skirt on the right.

The sleeve of the dress is long, widening downward, light, flying. A fake branch of a flowering apricot is attached to the head on the right side. Shalvars of juicy green in crepe de Chine, bottom trim with embroidered braid "zhiyak" with tassels inward. In the hands of a branch of blossoming apricot in the form of a scepter.

In the waltz "Bakhor" the costume images acquired a symbolic character. The poetry of colors and lines, donated by nature and expressed in the color of fabrics, creates a colorful scale that captures the imagination of the viewer in a spring garden consists in the poetic glorification of spring nature.

M. Turgunbaeva's dance "Tanovar" reveals the spiritual beauty of an Uzbek woman. Each movement of the dance is an expression of the boundless sadness of a woman's soul, the bitterness of separation from her beloved. The dance costume is immediately remembered for the severity and elegance of its lines.

It is close to the traditional dress: a long wide dress made of white crepe de Chine with long sleeves and a turn-down collar, a long six-ribbed tun (camisole) without a fastener, made of striped.

On the head is a silk scarf measuring 70x70 cm; long satin trousers at the bottom are decorated with an embroidered jiyak braid. The costume is complemented by a zebigardon chest decoration, earrings, bracelets. The dance reveals the image of a real simple woman; everyday features of the costume emphasize the lyrical and psychological realistic nature of the composition, help the dance to be more convincing and closer to the viewer.

One of the brightest dances in the repertoire of the "Bakhor" ensemble is "Nozanin". The solo dance was staged in the traditions of the Bukhara school. The traditional Bukhara (dress) is usually made of heavy fabrics with a rich gold embroidery pattern and is of exorbitant breadth.

But, proceeding from the dance concept, the artist Z. Kurysh decided to stylize the costume. A dress made of bright yellow chiffon with very wide, airy sleeves, a wide upper straight-cut camisole made of thin synthetic fabric, sparkling with gold, imitating brocade.

The artist preserves the straight lines of the cut of the tunic dress, but significantly lightens the costume by choosing fabrics of transparent flying texture. And this choice is artistically appropriate, given the nature of the dance, which includes elements of virtuoso technique: impetuous charms, deep egilish. The increasing complexity of the dance technique required changes in the costume.

The costumes of the "Bakhor" ensemble have established the principles of costume design of the Uzbek folk-stage dance, approved the visual reflection of local dance schools. M. Turgunbaeva and Z. Kurysh, costume designer of the ensemble, preserving the features of ethnic costume, at the same time, use the method of free theatrical interpretation.

Thus, in the costumes of the "Bakhor" ensemble, the refusal from the abundance of embroidery and adornments, which is characteristic of the national women's dress, is obvious. If ethnic dresses were sewn from variegated printed fabrics, then the “Bakhor” ensemble opts for plain, monochrome fabrics.

At the present stage of development of the Uzbek folk stage art in costume design, eclecticism, non-observance of the local style, excessive brightness and variegation of combinatorics and fabrics are widely observed. One suit can combine a gold embroidered Bukhara vest with a traditional Fergana satin and a Namangan skullcap. The fabrics suffer from excessive variegation of print, exaggerated catchiness of color, color coloring of unnatural shades. The emphasis on the spectacular effect, the eclecticism of styles violate the folk authenticity, the national originality of the costume.

Among the features of the stage costume of the "Bakhor" ensemble is the stability of the system of aesthetic principles with the variety of its imaginative solutions and the artistic originality of each costume. The costume design of the dance compositions of the "Bakhor" ensemble preserved the continuity of traditions, embodying the ideas of the national image and aesthetic ideal through the costume.

The artistic polysemy, the beauty of the pictorial appearance of the dance costume formed its meaning, as a pictorial canon in the embodiment of the national image. The stage costumes of the "Bakhor" ensemble are the cultural heritage of Uzbekistan, a unique monument of the material and spiritual culture of the nation.

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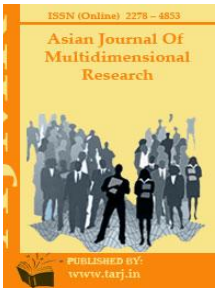

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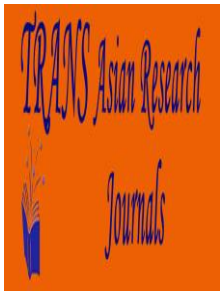

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TO THE FERTILIZER KNIFE DETERMINATION OF RESISTANCE

T.S.Xudoyberdiev *; B.R.Boltaboev; B.A.Razzakov***; M.Sh.Kholdarov******

*Professor,
Andijan Institute of Agriculture and Agrotechnology,
UZBEKISTAN

**Docent,
Andijan Institute of Agriculture and Agrotechnology,
UZBEKISTAN

[3,4]independent Researchers,
Andijan Institute of Agriculture and Agrotechnology,
UZBEKISTAN

ABSTRACT

Cotton fields are plowed in the fall, and the practice of removing cotton after the leveling process is becoming more common.In early spring, the temperature of the buds is higher than in the flat areas, which causes the frozen lumps to crumble, the soil to improve grain granularity, and the buds to be ready to suck early.Simultaneous fertilization with cotton yields increases cotton yields. Research in this area has shown that the method of spreading the fertilizer on both sides of the seed and in the middle of the base during the germination process has been studied.However, the method of layer application has not been studied. The article presents the results of research conducted to address this issue.In this case, a knife was installed in front of the pile receiver to break the soil along with the fertilizer spreader and make way for the fertilizer, and it was intended to apply the fertilizer in two layers of the pile, on the pile base and 12 ... 13 cm above it.To do this, the main drag resistance of the blade was determined using the condition that the remnants of weeds and debris were cut during movement and slid and pass under the blade. This indicates that the selected parameters of the blade are an important criterion for the effectiveness of the blade, which is the main factor influencing the performance and economic performance of the device. It is assumed that the total drag resistance of the fertilizer consists of three components, namely, the resistance to soil friction on the side surface of the blade, it was found that the concentration of 112 N - V = 2 m / s - is equal to 122.4 N.

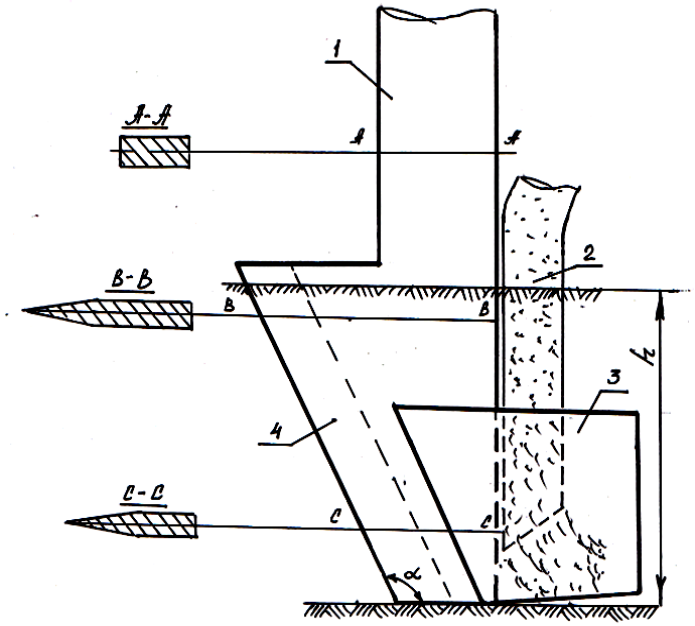
KEYWORDS: *Cotton Fields, Leveling Process, Plowing, Fertilizing, Fertilizer, Fertilizer Blade, Soil Penetration Angle, Drag Resistance, Sharpening Angle Constructive Angle.*

INTRODUCTION

General information. In the cotton sector, it is common to plow fields in the fall and remove cotton after the leveling process.When the buds are removed, the existing lumps freeze in the winter.In early spring, as the temperature of the buds rises, the frozen lumps thaw and crumble, improving soil granularity.

Because the temperature of the buds is higher than in flat areas, the sowing process begins earlier and the germination of seeds accelerates.The application of phosphorus fertilizers to the harvested cotton will further increase the yield. [1].

Research has been conducted on the layering of fertilizer during the germination process. [2,3,4]. In most studies, the seed to be sown is placed in a ribbon on both sides and between the bases of the buds. [4,5].



However, other methods and methods of fertilizer application have not been sufficiently studied, except for the application of fertilizers in the fall.

As a solution to this problem, the design of a fertilizer receiver-fertilizer, which applied the fertilizer to 2 layers of cotton, almost in bulk, was developed and a knife was selected.The purpose of the knife is to break through the soil and make way for the seed drill.

During the application of fertilizers under the soil, the blade was selected in such a way that it does not stick to the weeds in the soil.

(Figure 1).

h- is the depth of fertilizer application, a - is the angle of penetration of the blade into the soil.

1- fertilizer blade column, 2- seed conductor, 3- protection bar, 4- blade.

Figure 1. The structure of the fertilizer blade.

For the cultivator to move steadily at the depth of fertilization, its resistance must be as low as possible, as this is a key parameter that affects the performance and economic performance of the fertilizer.

The purpose of the study was to determine the fertilizer resistance of the developed baler-fertilizer to the movement of the blade at the depth of fertilization.

The solution to the problem. The resistance of the fertilizer blade is the sum of the following resistances.

$$R_n = R_T + R_б + R_{ён}$$

here it is RT-the force generated from the scraping of soil or weeds, which affects the knife blade, N;

RB is the horizontal resistance force acting on the neck of the blade, N;

Ren-the force generated by the friction of the soil on the side surface of the blade, N.

Researchers have suggested different expressions of the resistance of the working body of the blade to the soil.

Goryachkin VP, Zelenin A.N., and Konstritsin A.K. proposed an expression for the resistance of the blade to the relative resistance of the blade to cutting and the depth at which the blade sinks into the ground. [6,7,8].

$$R_т = \rho_л \cdot h_n \quad (2)$$

here: rl-comparative resistance to cut-off, N/ m;

hp-depth of immersion of the blade in the soil, m.

Nuraboev B.U. [10] proposed the following expression to determine the coefficient of resistance to compaction of the soil, taking into account the thickness of the blade and the planting depth, to calculate the resistance to the blade, i.e.

$$R_T = 2q_э\delta \cdot h\left(ctg\beta^1 \cdot tg\varphi + 1\right) \quad (3)$$

here: QE - the coefficient of comparative resistance to soil crushing, N / m2;

δ-the thickness at which the thread does not pass through the working process [11,12,13], m;

depth of immersion of H-tug into the soil, m;

the β1-sharpening angle of the blade, grad;

φ-external friction angle, grad.

The above expressions have the inherent advantage and the ability to accurately represent the process. However, we use expression (3) to determine the resistance of the blade to the blade because it fully describes the working process of the fertilizing blade.

The movement of the blade causes the process of crushing the soil by its necks to take place. As a result, volumetric compaction of the soil occurs, which depends on the velocity of the aggregate (13). The empirical expression that expresses this is as follows

$$q_v = q_0\left(m \cdot V^2 + d\right) (4)$$

In the process of crushing, the force of pressure on the neck of the knife is affected, and its equal impact N is determined by the following expression,**Picture 2.**

$$N = q_0\left(m \cdot V^2 + d\right) \cdot 0{,}5b \cdot L_{миг} \cdot h \ (5)$$

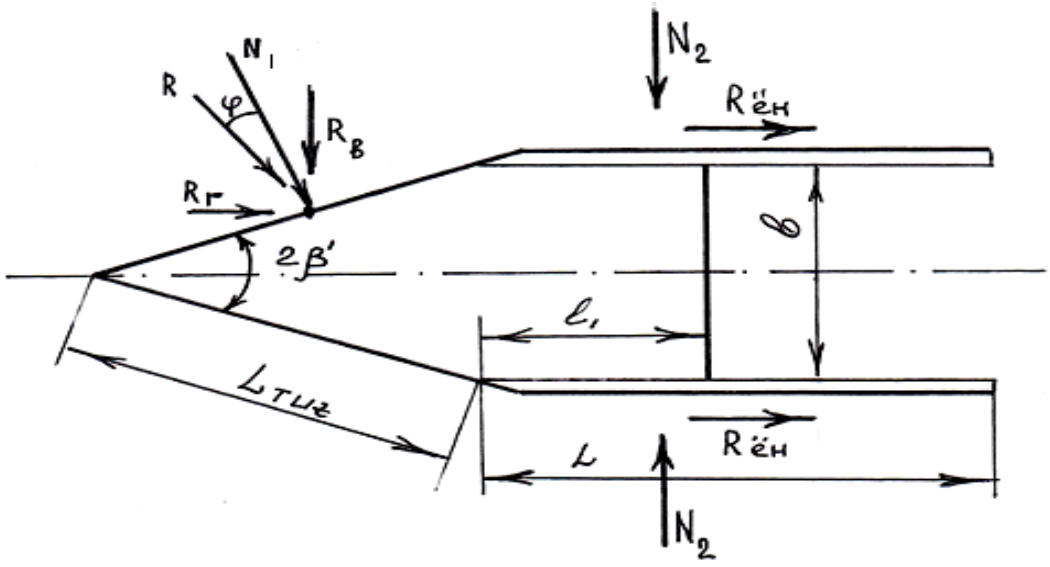
here: qo-the coefficient of resistance of the soil to chemical crushing, when the speed is 1,1 m / s, N / m3;

m - coefficient, S2 / m2;

B-the thickness of the blade, m;

Ltig-the length of the blade in the horizontal plane of the blade, m;

h-depth of fertilization.



Picture 2. Scheme of forces acting on the neck of the knife.

For the resistance of the knife to drag, we use the following expression:

$$R_{\Gamma} = \frac{N_1}{\cos\varphi} \text{ or is it the case } R_{\Gamma} = \frac{2q_0\left(m \cdot V^2 + d\right)0{,}5 \cdot в \cdot h \cdot L_{тиг}}{\cos\varphi} \qquad (6)$$

$L_{тиг} = \frac{0.5 \cdot в}{\sin\beta^1}$, given that:

$$R_{\Gamma} = \frac{2q_0\left(mV^2 + d\right)0{,}25 \cdot в^2 \cdot h^2}{\cos\varphi \cdot \sin\beta^1} \qquad (7)$$

The strength of the resistance formed by the friction of the soil with the side surface of the blade Ryon is determined by the following expression.

$$R_{ён} = 2 \cdot f_2 \cdot N_2 \qquad (8)$$

Here:f – coefficient of friction between the ground blade and the blade;

N2-equal effect of the forces acting on the side surface of the blade from the compression of the soil, N.

The equivalent effect of the forces generated from the compression of the soil on both sides of the blade is determined as follows N2 [14]:

$$N_2 = \sigma_{ён} \cdot h \cdot l \text{ or } N_2 = \sigma_{ён} \cdot (S_1 + S_2) \quad (9)$$

here: - comparative resistance generated by soil compaction, N / m2;

h–the height of the surface on which the soil compaction is formed, m;

l-the length of the surface on which the soil compaction is formed, m.

The surfaces in the expression are two parts, that is, S1=l1·N/2; l1=0,02 m the second surface is S2=h2·l2, (Figure 1)

In that case

$$R_{ен} = 2 f_2 N_2 \quad or\ R_{ен} = 2 f_2\ \sigma_{ен}(S_1 + S_2) \quad (10)$$

If we put the S1 and S2 surfaces (10) into the expression:

$$R_{ен} = 0{,}007 \cdot f_2 \sigma_{ен} \quad (11)$$

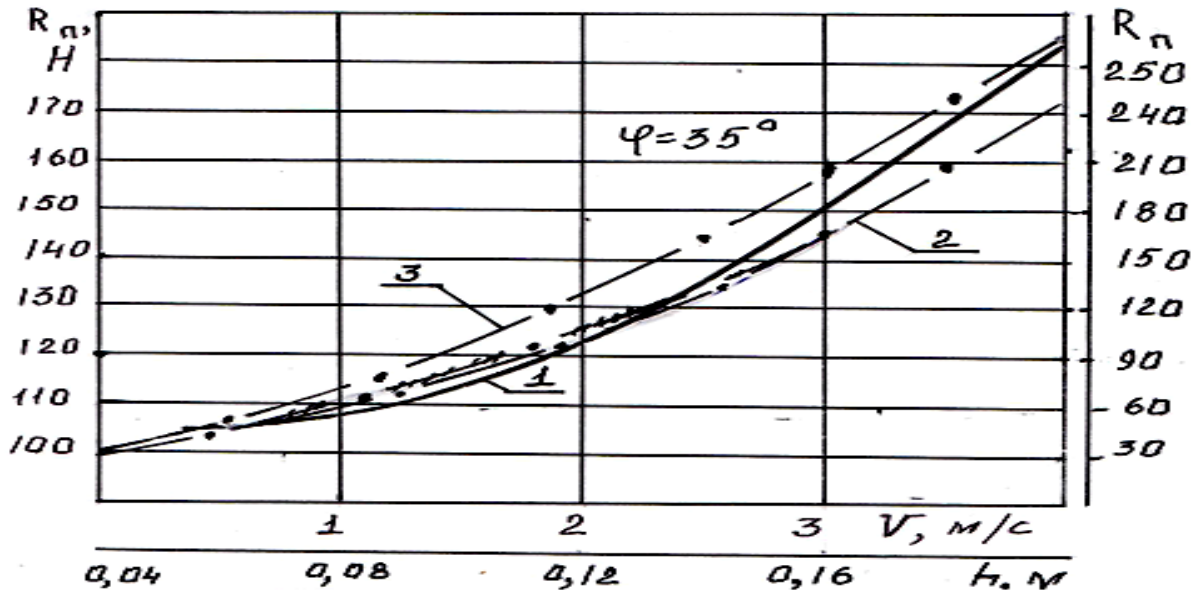
If we put the resulting (3),(7), and (11) expressions into the expression (1), we will have an expression indicating the resistance of the blade to drag.

$$R_n = 2 \cdot q_э \delta \cdot h\left(ctg\beta^1 \cdot tg\varphi + 1\right) + \frac{2q_0\left(mV^2 + d\right) \cdot 0{,}25 \cdot в^2 \cdot h^2}{\cos\varphi \cdot \cos\beta^1} \quad (12)$$

$$+ 2 f_2\ \sigma_{ен}(S_1 + S_2)$$

This expression is given in the sources [10,13,14,15]=0,002 m, β1=280, N=0,12 m, =350, =45000N/m2,V=2m/s, 2,5 m/s, f=0,9, f2=07, d=0,9,m=0,09,v=0,02 m, V=60A, δ=750N/m2, QA=106N/m3, S1=0,001m2, S2=0,0025m2,n=0,12 m, you put the values of=0,00357m2, we get that QP is equal to 122,4 N.

It can be seen that the resistance of the fertilizer to dragging the blade varies depending on the physicomechanical properties of the soil, the constructive dimensions of the blade, the angle of bending of the blade and the speed of movement. The resistance of the fertilizer blade to drag is shown in Figure 3, which changes depending on the speed of the aggregate to VGA (1-line), the depth of fertilization to h (2,3 lines). [16,17]



1. $R_n=f(V)$; 2.$R_n=f(H)$; $V=1$м/с;3.$R_n=f(H)$; $V=2$м/с

Ordinate axis to the left. ordinate axis on the right

Picture 3. The change of the fertilizer blade according to the aggregate speed (V) and fertilization depth (N).

At the same time, the drag resistance increases with the increase of both parameters.

CONCLUSIONS

1. Theoretical studies have shown that the fertilizer resistance of a bladed fertilizer blade at two depths is determined.
2. The selected parameters of the fertilizer blade were determined to be its drag resistance at 112 N at V = 1.5 m / s and 122.4 N at V = 2 m / s.

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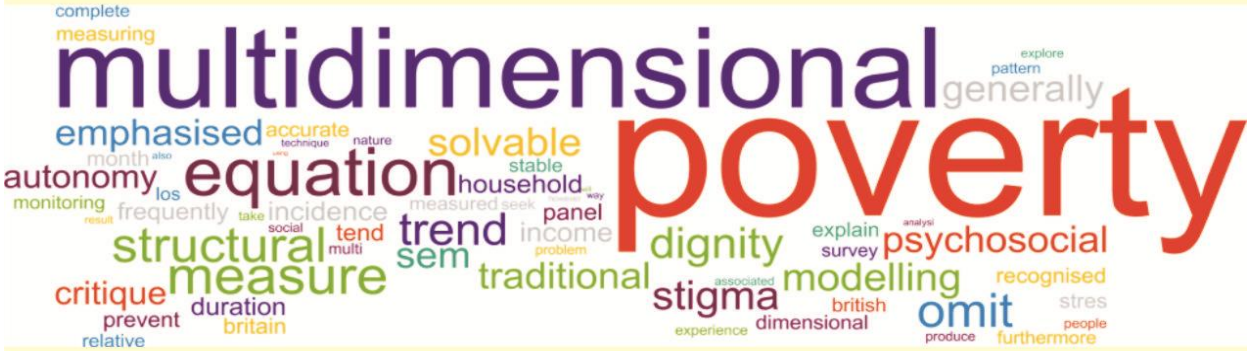

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