

INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY: APPLIED BUSINESS AND EDUCATION RESEARCH

2023, Vol. 4, No. 2, 421 – 428

<http://dx.doi.org/10.11594/ijmaber.04.02.09>

Research Article

Cluster Analysis of the Teacher – Applicants to be Enlisted in the Registry of Qualified Applicants for Public School Teachers: Basis for Policy Formulation

Yolanda A. Apilada*, Christine G. Cameros, Mayalene S. De la Rita, Maridel L. Ceniza, Relly V. Manlapas, Jane Golandrina

Department of Education, Division of Butuan City, Philippines

Article history:

Submission February 2023

Revised February 2023

Accepted February 2023

*Corresponding author:

E-mail:

yolanda.apilada@deped.gov.ph

ABSTRACT

The Recruitment, Selection and Placement Core Group of the PRIME-HRM of the Department of Education Division of Butuan City conducted this research mainly to address the issues on the assessment of the Teacher applicants particularly in the scoring system which may eventually be hired in the Department of Education. To identify gaps in assessing teacher competencies, the researchers used the K-means cluster analysis to generate knowledge that could be the basis for policy formulation. An applicant can be in the Registry of Qualified Applicants if he/she passes the criteria in the selection relative to their qualifications and competencies. The researchers found two issues that need to be addressed. First, it is the experience and the English Proficiency Test (EPT) results. Experience is necessary because teaching is a skill which requires expertise, but we do not prioritize it over other criteria. Another gap is the English Proficiency Test result. English is an essential factor in the teaching profession since it is our second medium of speech and teachers are facilitators in the learning process of pupils and students. Thus, there is a need to revisit the EPT tool and propose modification if deemed necessary; English skills enhancement is duly recommended from Senior High School to Higher Education to develop mainly its basic communication proficiency; newly hired teachers will undergo training to enrich English aptitude; enhance the policy on recruitment process.

Keywords: *Cluster analysis, Policy formulation, Public school teachers, Recruitment process, Registry of Qualified Applicants (RQA)*

Introduction

Human capital resources are the lifeblood of the organization. This resource can adversely affect the success of the organization if not properly managed. Thus, it is essential.

How to cite:

Apilada, Y. A., Cameros, C. G., De la Rita, M. S., Ceniza, M. L., Manlapas, R. V., Golandrina, J. (2023). Cluster Analysis of the Teacher – Applicants to be Enlisted in the Registry of Qualified Applicants for Public School Teachers: Basis for Policy Formulation. *International Journal of Multidisciplinary: Applied Business and Education Research*. 4(2), 421 – 428. doi: 10.11594/ijmaber.04.02.09

Strategic Human Resource should be established to have a holistic and dynamic organization giving importance to the human capital resource.

Deped Order No. 7, s. 2015, Deped Order 22, s. 2015, Deped Order 19, s. 2022 is the policy of the Department of Education (DepEd) to strictly adhere to the principles of merit, competence, fitness, equal employment opportunity, transparency and accountability. The selection of employees shall be based on their relative qualifications and competence to perform the duties and responsibilities for the position. In this pursuit, the Policy on Recruitment, Selection and Placement of Department of Education Division of Butuan City aims to establish a system that is characterized by strict observance of the principles of merit, competence and fitness in the selection of employees for appointment to positions in the career and non-career service in all levels and create equal opportunities for employment to all who are qualified to enter government service and for career advancement in the Department of Education Division of Butuan City.

This study aims to identify issues and gaps of teacher applicants in the Registry of Qualified Applicants who will be hired and to come up with an implementable, relevant, and acceptable solution to the existing issues using applicable interventions and innovations that can benefit DepEd Butuan City Division.

Methods

This study employed exploratory research design. The data used in this research is the existing data of the Registry of Qualified Applicants (RQA) in the Department of Education - Division of Butuan City from 2019, 2020 and 2021. To identify the components that affect the total points of the applicant to qualify in the recruitment, selection and placement process, the researchers used the clustering analysis method. Upon using the said method, the researchers were able to determine the highest and lowest factor of an applicant during the recruitment process. This study utilized descriptive research design and exploratory data analysis to identify gaps in assessing teacher competencies. The researchers used the K-means cluster analysis to generate knowledge that could be the basis for policy formulation.

Results and Discussion

Teacher applicants can be in the list of Registry of Qualified Applicants (RQA) if he/she obtains a minimum accumulated point of 70. The components of the ranking of scores of the teacher applicants are as follows: education (20 points), teaching experience (15 points), LET rating (15 points), specialized training documents (10 points), interview (10 points), demonstration teaching (15 points), English proficiency or communication skills (15 points).

Table 1. Frequency and percentage distribution on the general weighted average on secondary teacher applicants

GWA	2019		2020		2021	
	f	%	f	%	f	%
1.0	0	0.00	0	0.00	0	0.00
1.1	0	0.00	2	0.34	2	0.31
1.2	1	0.40	12	2.03	13	2.01
1.3	1	0.40	17	2.88	17	2.63
1.4	6	2.42	22	3.73	20	3.10
1.5	8	3.23	39	6.61	47	7.26
1.6	10	4.03	50	8.47	53	8.19
1.7	18	7.26	68	11.53	74	11.44
1.8	37	14.92	89	15.08	104	16.07
1.9	36	14.52	82	13.90	91	14.10
2.0	43	17.34	67	11.36	70	10.82
2.1	10	4.03	27	4.58	33	5.10
2.2	30	12.10	28	4.75	33	5.10

GWA	2019		2020		2021	
	f	%	f	%	f	%
2.3	12	4.84	16	2.71	1	0.15
2.4	3	1.21	13	2.20	21	3.25
2.5	5	2.02	5	0.85	14	2.16
2.6	1	0.40	1	0.17	4	0.62
2.7	2	0.40	1	0.17	1	0.15
2.8	0	0.00	1	0.17	1	0.15
2.9-3.0	24	9.68	50	8.47	48	7.42
Total	248	100	590	100	647	100

Table 1 shows the three years consolidated data. It is found out that more than half of the applicants with the mean of 59.68% got a general weighted average of their academic grades' ranges from 1.6 to 2.0. This explains that most of the applicants have good standing and maintain good academic performance during their undergraduate years of studies.

The abovementioned result was being opposed by the study of Velasco (2012) which reiterated that there is a common belief

among undergraduate students that they must study hard attempting to earn high grades because employers are targeting graduates with outstanding academic records. However, this idea does not seem to capture what is happening in organizations, as firms value more aspects related with personality and other personal qualities of young graduates. The results show that soft skills like personality and other qualities are the most required attributes in the selection process.

Table 2. Frequency and percentage distribution on the teaching experience of the secondary teacher applicants

Teaching Experience	2019		2020		2021	
	f	%	f	%	f	%
< 2 years	189	76.20	490	83.05	504	77.90
2 to < 5 years	36	14.50	88	14.92	121	18.70
5 or > more years	23	9.30	12	2.03	22	3.40
Total	248	100	590	100	647	100

Table 2 shows that most of the applicants in the Department of Education have either less than two years or no teaching experience. This means that most of them are fresh graduates or have less exposure to the arena of teaching. This component in the hiring of secondary teachers has a maximum equivalent of 15 points from the total 100 points set in the Registry of Qualified Applicants (RQA). Teaching experience is one of the major reasons why most of the applicants in both years (2019, 2020, and 2021) were not hired in DepEd because they were not able to reach the required points (minimum of 70 points) for them to be

in the RQA. Being a fresh graduate and even less number of years in teaching experience does not mean that they are not competent enough to teach in DepEd or in public schools. This is supported by the study of Graham, et. al., (2020) that the results show no evidence of lower teaching quality for beginning teachers (0–3 years' experience) ... and thus extensive reforms have been made to initial teacher education (ITE) to improve “teacher quality” without any evidence to support the claim that beginning teachers are less competent than experienced teachers.

Table 3. Frequency and percentage distribution on the eligibility of the secondary teacher applicants

ELIGIBILITY	2019		2020		2021	
	f	%	f	%	f	%
87 & above	1	0.40	22	3.73	20	3.09
84-86	8	3.23	56	9.50	54	8.35
81-83	39	15.73	140	23.73	162	25.04
78-80	76	30.65	202	34.24	221	34.16
75-77	97	39.11	147	24.92	170	26.28
0	27	10.89	23	3.90	20	3.09
Total	248	100	590	100	647	100

The data disclosed in Table 3 shows the Licensure Examination for Teachers (LET) rating of the applicants in three years. As observed, more one-third of the teacher applicants belong to the 75-77 bracket in which in 2019 there are 39.11% or 97 applicants who belong between the range, 34.24% or 202 in 2020 falls between 78 – 80 range, and 34.16% or 221 in 2021 falls between 78 – 80 range. Further, it reveals that more than two-thirds (69.76%) of the teacher applicants in 2019 falls between the range 75–80 rating in the licensure examinations, more than half

(59.15% and 60.43%) falls in the same range in 2020 and 2021 respectively.

In the Philippines Education system, competence in Teachers’ professional test has been used as a primary indicator for quality, reflecting the stock of knowledge, beliefs, attitude, and dispositions of a graduates (Generalao, et al., 2022, as cited in Kennedy 2008). Further, as cited by Alfonso (2019), he reiterated that the quality of education by schools in the country is being gauged based on the performance of graduates in the licensure examination for board courses.

Table 4. Frequency and percentage distribution on the specialized training of secondary teacher applicants

Specialized Training	2019		2020		2021	
	f	%	f	%	f	%
Certification and Demonstration of the skill	117	47.18	345	58.47	398	61.51
Demonstration of the skill only	131	52.82	245	41.53	249	38.49
Total	248	100	590	100	647	100

Table 4 portrays the frequency distribution of the specialized training attended and skills demonstration of the teacher applicants for three consecutive years. Data revealed that for years 2020 and 2021, more than 50% of the applicants (345 applicants in 2020, and 398 in 2021) have presented specialized training for skills development in fields related to the work, duties, and functions of the Teacher I position; more than 50% also in 2019 shows demonstration of the skills only.

In the research conducted by Zulfiqar (2016), it was revealed that teacher training is an important requirement and essential

component for all educational activities including a conducive learning environment, curriculum development, and implementation and assessment. Additionally, according to Saira, et al. (2021), it was evident that trained and skillful teacher has more ability to teach the students and implement the various teaching methods successfully.

When teachers apply various teaching methods and techniques according to the acquired skills then students achieved higher academic results and the interest of the student is also increased (Wuryaningsih et al., 2019).

Table 5. Frequency and percentage distribution table on the results of the interview of the secondary teacher applicants

Descriptive Rating	2019		2020		2021	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Exemplary	143	57.66	439	74.41	464	71.72
Fully Acceptable	38	15.32	65	11.01	74	11.43
Not Fully Acceptable	67	27.01	86	14.58	109	16.85
Total	248	100	590	100	647	100

The data in Table 5 depicts the result of the interview conducted by the Division Selection Committee. In 2019 143 or 57.66% of the teacher applicants shows exemplary rating, 439 or 74.41% in 2020, and 464 or 71.72% in 2021.

Based on the hiring guidelines of DepEd Order No. 7, s. 2015, those who received an exemplary rating demonstrated all the targeted

behaviors. Their responses indicated well-developed skills and aptitude for the competencies required, which would most likely lead them to job success. Meanwhile, those applicants who received a Not Fully Acceptable rating revealed that they did not provide enough information to have confidence that they have that competency at the level needed for success.

Table 6. Frequency and percentage distribution table on the results of the demonstration teaching of the secondary teacher applicants

Descriptive Rating	2019		2020		2021	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Transforming	148	59.68	467	79.15	488	75.43
Developing	16	6.45	36	6.10	47	7.26
Emerging	18	7.26	0	0	1	0.15
Beginning	66	26.61	87	14.75	111	17.16
Total	248	100	590	100	647	100

Table 6 shows the demonstration teaching ratings of the teacher-applicants. The tabulated data displays a notable number of applicants who received 10.6 to 15 points with a descriptive rating of Transforming. There are about 60% of the Teacher 1 aspirants, who received a Transforming rating in 2019, about 79% in 2020, and 75% applicants in 2021. The result revealed that most teacher applicants demonstrated potential for the major task of teaching,

which is a requirement for the Teacher 1 position.

The result was affirmed by the study of Su et. al (2021) which states that teaching by demonstration is capable of imparting knowledge and skills to students by employing active learning of multiple demonstrated tasks. This demonstration aims to transfer knowledge and skills from multiple human demonstrations in attaining the quality teaching-learning process.

Table 7. Frequency and percentage distribution table on the results of the English Proficiency Test of the secondary teacher applicants

Proficiency Level	2019		2020		2021	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Intermediate	40	16.13	54	9.15	96	14.84
Upper Intermediate	126	50.80	296	50.17	337	52.09
Advanced	81	32.66	236	40.00	211	32.61

Proficiency Level	2019		2020		2021	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Proficient	1	0.40	4	0.68	3	0.46
Total	248	100	590	100	647	100

The above table presents data on the results of the English Proficiency Test (EPT) for secondary teacher applicants in the department for three years. It appeared that more than half of the applicants got 33.33% to 60% score of their EPT. This means that they got only 5 to 9 points out of the 15 points of the EPT. This further explains that most of the applicants are not good in comprehension as well as in identifying errors in the sentence.

Result of the data was being opposed by the study of Ahmad (2016) which emphasizes the importance of English communication

skills. Communication is a skill which involves systematic and continuous process of speaking, listening, and understanding. Most people are born with the physical ability to talk, but we must learn to speak well and communicate effectively. Speaking, listening and our ability to understand verbal and nonverbal cues are the skills by observing other people and modeling our behavior on what we see and perceive. We are also taught some communication skills directly through education. By bringing those skills into practice and getting them evaluated.

Table 8. Cluster analysis of the performance of the teacher-applicants for the Teacher 1 position

Variables	Cluster		
	1	2	3
Education	11.98	13.20	9.58
Experience	1.00	2.79	1.47
Eligibility	12.06	12.32	10.32
Training	4.47	9.26	4.15
Interview	8.58	9.34	1.75
Demo	12.99	14.04	2.65
EPT	6.33	8.81	4.72
RQA rating	57.40	69.76	34.66

Table 8 shows the clustering of the performance of the teacher-applicants for the Teacher 1 position of the Department of Education in Butuan City Division. It reveals that the clustering of the applicants is mainly determined by the criteria and guidelines for selection for the applicants to be considered in the list of the Registry of Qualified Applicants (RQA). It was found that Cluster 2 are the best performing teacher-applicants while Cluster 3 are the worst performing applicants. Further, the best performing teacher-applicants are characterized as those who have relatively performed well in their academic years in college and most probably with high rates in the licensure examination, showcased their skills in teaching during their teaching demonstration and in interview, and are excelled in communication or proficient enough to practice the

medium of instruction even with a smaller number of years of experience in teaching.

Conclusion

The Registry of Qualified Applicants is the basis of the Schools Division Superintendent in appointing teachers for the vacant teacher I positions.

Moreover, from the criteria set in the selection of applicants relative to their qualifications and competence, experience (record tracking) and the EPT (ability wise) affects the scores of the applicants.

Thus, the researchers come up with an idea to develop a customized system on the recruitment process, selection, and placement. Further, with this study, the researchers will come up with an innovation to fast track the dissemination of vacancies, receiving of applications

and evaluation of documents. This innovation will lead the applicants to a pyramid shaped qualification assessment.

Acknowledgment

The researchers would like to express our sincerest gratitude and appreciation towards these individuals who were with us from the start of our journey and to those individuals who lent their assistance to make this research possible.

First and foremost, the researchers would like to give thanks to the Lord, our Almighty God for the knowledge and strength to wrap up this research study. Also, for giving this opportunity and involvement that gave us so much to learn, and we thank HIM for the guidance all through the end.

Second, the researchers would also like to give thanks to our Schools Division Superintendent, Dr. Marilou B. Dedumo, CESO V and Dr. Corazon P. Roa for the opportunity given to the non-teaching personnel in this research training.

Third, to our research expert who had been our subject experts and learning facilitators during our training-workshop on Research Dr. Alvic A. Arnado and Dr. Leo L. Codilla Jr, We, the researchers, want to express our deepest appreciation for the direction, exhortation and lending us the easy way in coming up of the result of the data and in making this research paper without them this research study would not come to fruition.

References

- Alfonso, N.V (2019). Policies, Practices of Teacher Education Institutions and the Performance of their Graduates. Retrieved January 24, 2023 from https://ijels.com/upload_document/issue_files/12-IJELS-APR-2019-31-Policies.pdf
- Ahmad, S. R. (2016). Importance of English communication skills. Retrieved on January 24, 2023 from <https://www.allresearchjournal.com/archives/?year=2016&vol=2&issue=3&part=H&ArticleId=1684>
- Hiring Guidelines for Teacher I Positions For School Year 2015-2016 (2015). Retrieved January 24, 2023 from <https://www.deped.gov.ph/2015/03/27/do-7-s-2015-hiring-guidelines-for-teacher-i-positions-for-school-year-sy-2015-2016/>
- Hiring Guidelines for the Remaining Teaching Positions Effective School Year (Sy) 2015-2016 (2015). Retrieved January 24, 2023 from <https://www.deped.gov.ph/2015/06/02/do-22-s-2015-hiring-guidelines-for-the-remaining-teaching-positions-effective-school-year-sy-2015-2016/>
- The Department of Education Merit Selection Plan (2022). Retrieved January 24, 2023 from https://www.deped.gov.ph/wp-content/uploads/2022/04/DO_s2022_019.pdf
- Generalao, I. N., Ducanes, G., Yee, K. M., and David, C. (2022). Teacher Education in the Philippines: Are We Meeting the Demand for Quality? Retrieved May 20, 2022 from https://www.researchgate.net/publication/357494648_Teacher_Education_in_the_Philippines_Are_We_Meeting_the_Demand_for_Quality
- Graham, L. J. White, S. L. J., Cologon, K., and Piantac, R.C. (2020). Do teachers' years of experience make a difference in the quality of teaching? Retrieved April 29, 2022 from <https://www.sciencedirect.com/science/article/pii/S0742051X20313810>
- H. Su, A. Mariani, S. E. Ovir, A. Menciassi, G. Ferrigno and E. De Momi, "Toward Teaching by Demonstration for Robot-Assisted Minimally Invasive Surgery," in IEEE Transactions on Automation Science and Engineering, vol. 18, no. 2, pp. 484-494, April 2021, doi: 10.1109/TASE.2020.3045655.
- Saira, Zafar, N., & Hafeez, M. (2021). A critical review on discussion and traditional teaching methods. Psychology and Education Journal, 58(1), 1871-1886. <https://doi.org/10.17762/pae.v58i1.1042>
- Velasco, M.S. (2012). More than just good grades: candidates' perceptions about the skills and attributes employers seek in new graduates. Retrieved May 15, 2012 from <https://www.semanticscholar.org/paper/More-than-just-good-grades%3A-candidates%E2%80%99-perceptions-Velasco/850d63a1e0174195070fe97638ec57d4029795bb>
- Wuryaningsih, W., Susilastuti, D., Darwin, M., & Pierewan, A. (2019). Effects of web-based learning and F2F learning on teachers achievement in teacher training program in Indonesia. International Journal of Emerging Technologies in Learning (ijET), 14(21), 123-147. <https://doi.org/10.3991/ijet.v14i21.10736>
- Zulfiqar, M. S. (2016). Teachers' perceptions about in-service training at Federal Government Educational Institutions (Cantts/Garrisons). Lahore (Unpublished doctoral dissertation's thesis). University of Education, Lahore.