

THE FORMULA OF LICENSURE EXAMINATION FOR TEACHERS: A COMPLEX ADAPTIVE SYSTEM MODEL

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Abstract:

This paper examined the formula in attaining success in the Licensure Examination for Teachers (LET) in order to promote a sustained increase in the LET passing results. The basic social atom is the education graduate imbued with the following competencies: knowledge, skill, attitude, and habit. Rules for interaction and adaptation are expressed in conditional statements. Results revealed that the formula of LET success is 40% Knowledge, 30% Skill, 20% Attitude, and 10% Habit. This clearly showed that the development of the competencies solely relies as to how the test taker equally balances and makes use of all his accumulated knowledge (K): concepts, paradigms, competences; skill (S): reading, writing, speaking, thinking; attitude (A): industry, optimism, patience, openness; and habit (H): study, reading, etc. However, such formula may not be successful if the social atoms belonging to the below average social atoms are greater in number with that of the above average and average social atoms. The dominance in number of the former may negatively influence the latter hampering success in the LET since there is a greater chance that recurrent interactions will occur among them. Thus, positive adaptation will only occur when the LET formula is observed along with purposive interactions generally taking place between the above average and average social atoms in order to attain optimum results in the LET.

Key Words: social atom, Licensure Examination for Teachers, competencies

Introduction:

A high percentage of passers in the Licensure Examination for Teachers (LET) indicates the competence of the Teacher Education Program (TEP) graduates of state colleges and universities (Esmeralda and Espinosa, 2015), yet a larger number of test takers still fail outweighing the former. Such failure is attributed to the unequal distribution of the competences: knowledge, skills, attitude, and habit. According to Herath (as cited in Calyaneratne, 2013), the purpose of knowledge, attitude, skills, and habits (KASH) is to show that more often than not poor performance is just an issue of knowledge and skills, but also includes poor attitudes and habits. Yet, individuals spend most of their resources developing knowledge and skills yet fail to develop the necessary attitudes and habits for success. Such imbalance in the development of the competencies has led to a series of fluctuating LET passing rates in the past years.

According to Lucido (2017) in her LET Analysis presentation during the 46th National PAFTE Convention, the data revealed an increasing passing percentage in the BEEd graduates

from 2014, 16.16%; 2015, 24.04%; 2016, 34.17%; and 2017, 35.29%. Though an increasing trend of passing percentage has been observed in the degree program, such results only show an incremental increase per year that has been of little value compared to those who failed. The main contributor of the downfall of the passing percentage is the immense number of repeaters failing the exam every year. The data shows that in the time span of 2014 to 2017, there were 44,545 repeaters but only 2,729 passed. This has led to the average passing percentage of 10.93% in the BEEd graduates.

On the other hand, the data revealed an unstable movement in the passing percentage of the BSEd graduates from 2014, 46.95%; 2015, 43.25%; 2016, 51.94%; and 2017, 64.63% (Lucido, 2017). Although a significant increase has been observed in the LET passing percentage, almost reaching the 75% mark, still the main contributor of the downfall are the repeaters. The data shows that in the time span of 2014 to 2017, there were 50,474 repeaters but only 7,678 passed. This has led to the average passing percentage of 25.46% in the BSEd graduates.

To sum it up, the overall LET passing percentage of the BEEd and BSEd graduates is 36.39% (Lucido, 2017). The results strikingly reveal a low passing percentage in the LET that if unresolved may lead to a low quality of future teachers. So what competencies are needed to succeed in the LET? This paper examines this issue.

Methodology:

This study made use of descriptive complex adaptive system technique where artificial worlds are created to investigate a phenomenon. The macroscopic characteristics that are observed are assumed to have come from complex interactions of the elements or social atoms in the system. In this study the social atoms are the students who will take the Licensure Examination for Teachers. Each social atom belongs to a level of competence: above average, average and below average based on the four characteristics: 40% Knowledge 30% Skills, 20% Attitude and 10% Habit; 10% Knowledge 40% Skills, 30% Attitude and 20% Habit; 20% Knowledge 10% Skills, 40% Attitude and 30% Habit; and 30% Knowledge 20% Skills, 10% Attitude and 40% Habit. When the social atom has an above average level of competence, he will be a topnotcher in the LET. On the other hand, the social atom that has an average level of competence will pass the LET but the social atom under below average will not pass the LET. Thus, when an above average social atom interacts with either average or below average atom, the latter two atoms will pass the LET. The following algorithm was used in the study:

Algorithm

1. Generate $n=20$ students numbered 1 to 20.
2. Generate discrete random numbers 1=below average, 2=average, 3=above average using random generator with a probability of 60%, 30%, 10% respectively. Tag each test taker with random sequence generated.

3. Generate the competence as follows: 40% Knowledge + 30 % Skills + 20% Attitude + 10% Habits.
4. Create the social atom category based on the competency average: 1-1.67=below average, 1.68-2.33= average and 2.34-3.0=above average.
5. Generate the initial action as follows: 1 = failed, 2 = passed and 3 = topnotch.
6. When atoms interact, base actions are created as follows: Count the number of “below average”, “average” and “above average”.
7. Repeat the steps 2 to 4 for 100 times
8. Repeat steps 1 -7 using the other three competence: 10% Knowledge + 40% Skills + 30% Attitude + 20% Habit; 20% Knowledge + 10% Skills + 40% Attitude + 30% Habit; and 30% Knowledge + 20% Skills + 10% Attitude + 40% Habit.

Findings:

The initial hypothesis is that there will be only 40% who will pass in the LET as there are only 10% above average, 30% average, and 60% below average students.

Figure 1 shows the histogram of the “fail-pass-topnotch” of the 40% Knowledge + 30% Skill + 20% Attitude + 10% Habit formula over 100 simulation runs. Each simulation run constitutes a sampling from a different community with the same characteristic configuration.

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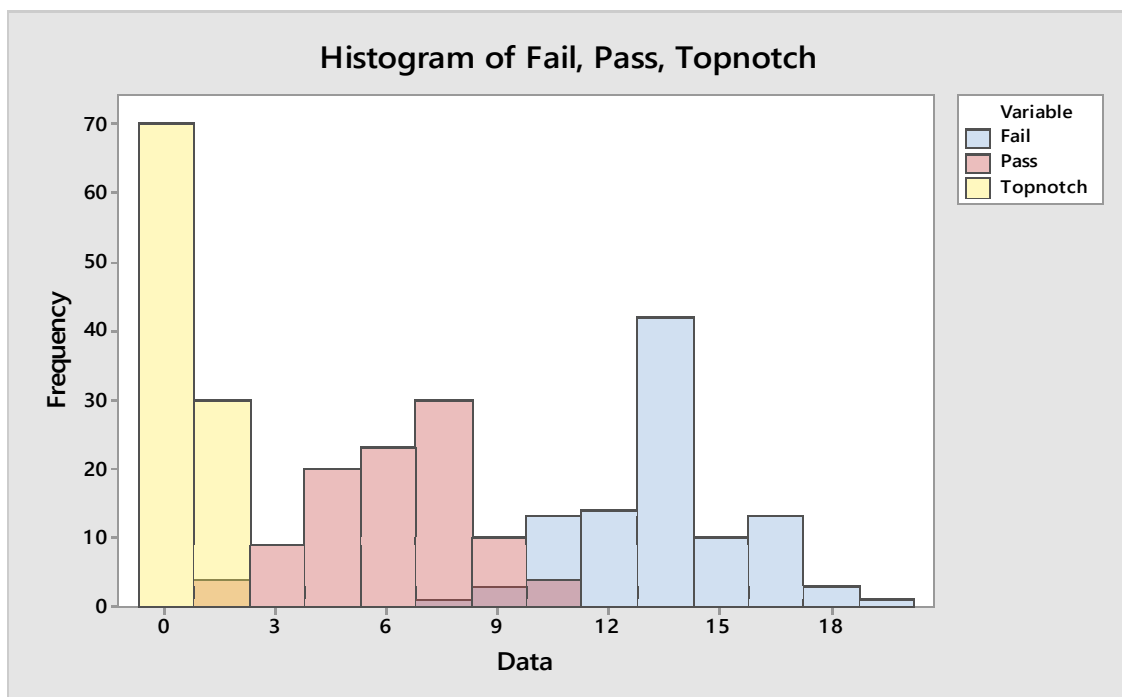


Figure 1 revealed that the average number of fail, pass, and topnotch is 13-6-1 respectively. The figure showed that instead of 12 (60%) fail, an average of 13 (65%) was obtained. This means that with a higher percentage of students whose characteristics as knowledge, skills, attitudes, and habits are below average, when they interact with the average and above average students with a lower population, there is a higher tendency that the average and above average students will adapt the characteristics of the below average students and so there will be more students who will fail in the LET. The figure also showed that on the average, there are 7 students who passed. This means that after the interaction with the above average and below average, the average students' characteristics are less affected making them pass in the LET. It also showed that the average number of topnotch is 1. It was hypothesized that there will be two who will topnotch. This means that with a high number of below average and a few average, when they interact with the above average in terms of the competency formula, they are more likely to be negatively affected decreasing their percentage to topnotch in the LET.

Figure 2 shows the histogram of the “fail-pass-topnotch” of the 10% Knowledge + 40% Skill + 30% Attitude + 20% Habit formula over 100 simulation runs

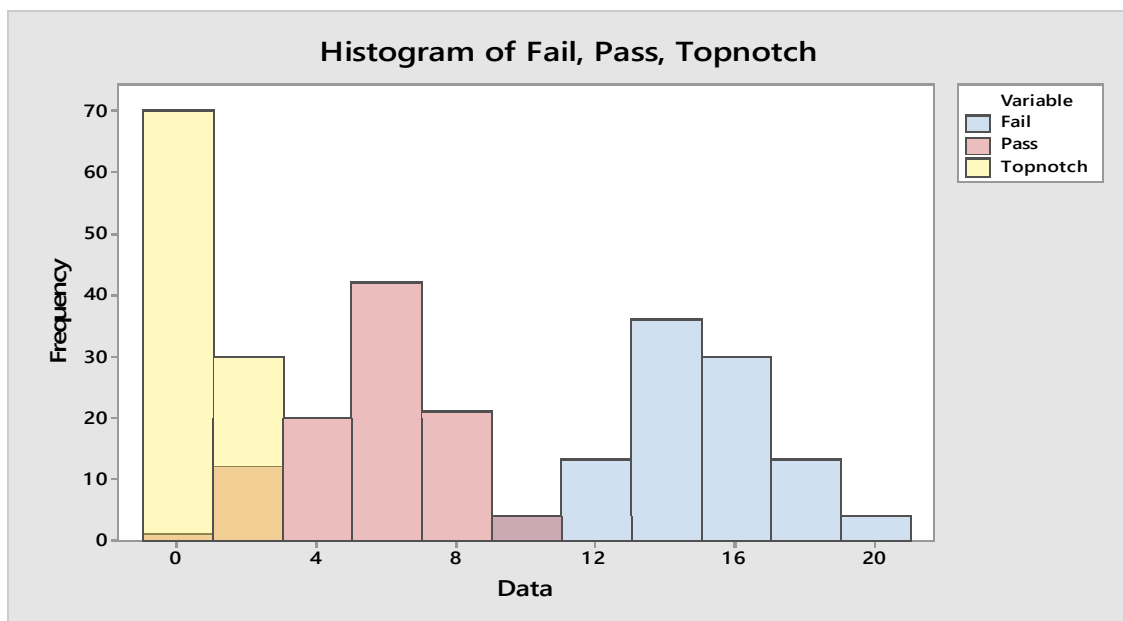


Figure 2 revealed that the average number of fail, pass, and topnotch is 15-5-0 respectively. As compared to the hypothesized result of 12-6-2, this formula shows an increasing number of failures and a decreasing number of topnotch. It can be further explained that the “Skill” being given the highest weight, 40%, in the formula will not yield a very good result.

Figure 3 shows the histogram of the “fail-pass-topnotch” of the 20% Knowledge + 10% Skill + 30% Attitude + 40% Habit formula over 100 simulation runs

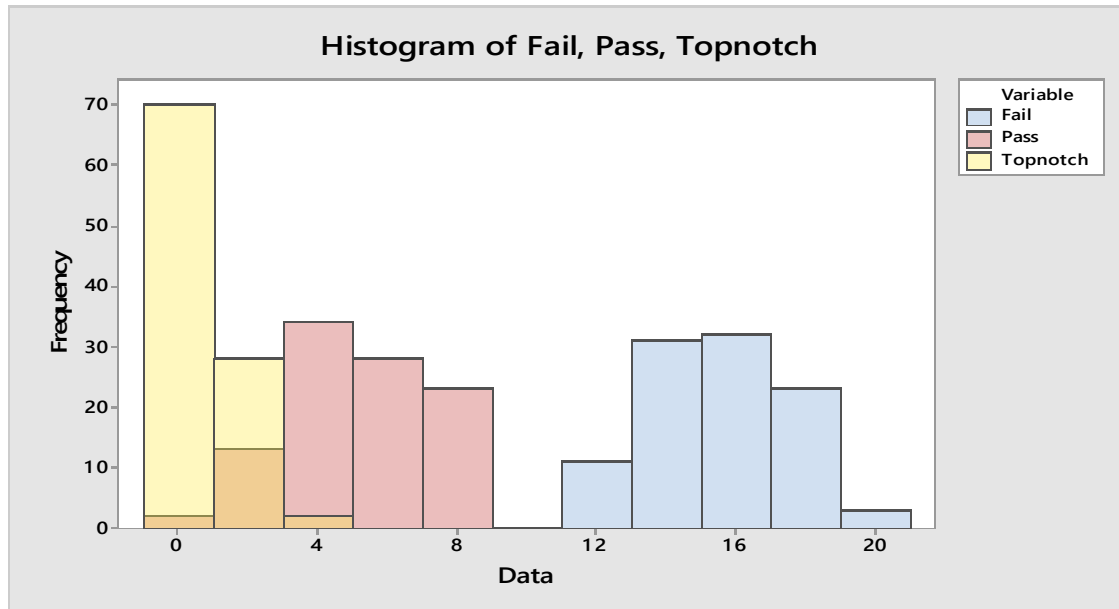


Figure 3 revealed that the average number of fail, pass, and topnotch is 15-5-0 respectively. The hypothesis was to produce a 12-6-2 yet the formula failed to obtain the target. It could be interpreted that putting more weight on habits and attitudes than knowledge and skills is not a good strategy among teacher education graduates.

Figure 4 shows the histogram of the “fail-pass-topnotch” of the 30% Knowledge + 20% Skill + 10% Attitude + 40% Habit formula over 100 simulation runs

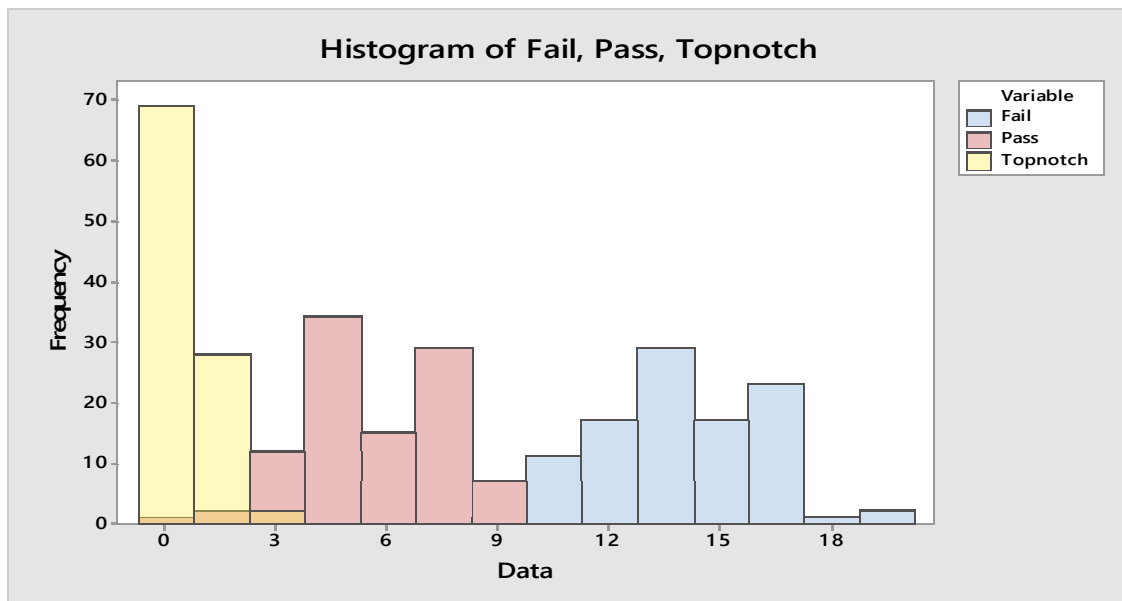


Figure 4 showed that the average number of fail is 14, 6 for pass, and 0 for topnotch. It was hypothesized that the number of fail, pass, and topnotch is 12, 6, 2 respectively. This means that if we will lower the weight of knowledge to 10% and raise the other characteristics, though the number of passers is maintained, the number of topnotchers decreased while the number of failures increased.

Figure 5 shows a comparative statistics of the four formulas to LET success as: F₁ as LET = 40% Knowledge + 30% Skill + 20% Attitude + 10% Habit; F₂ as LET = 10% Knowledge + 40% Skill + 30% Attitude + 20% Habit; F₃ as LET = 20% Knowledge + 10% Skills + 40% Attitude + 30% Habit; and F₅ as LET + 30% Knowledge + 20% Skill + 10% Attitude + 40% Habit

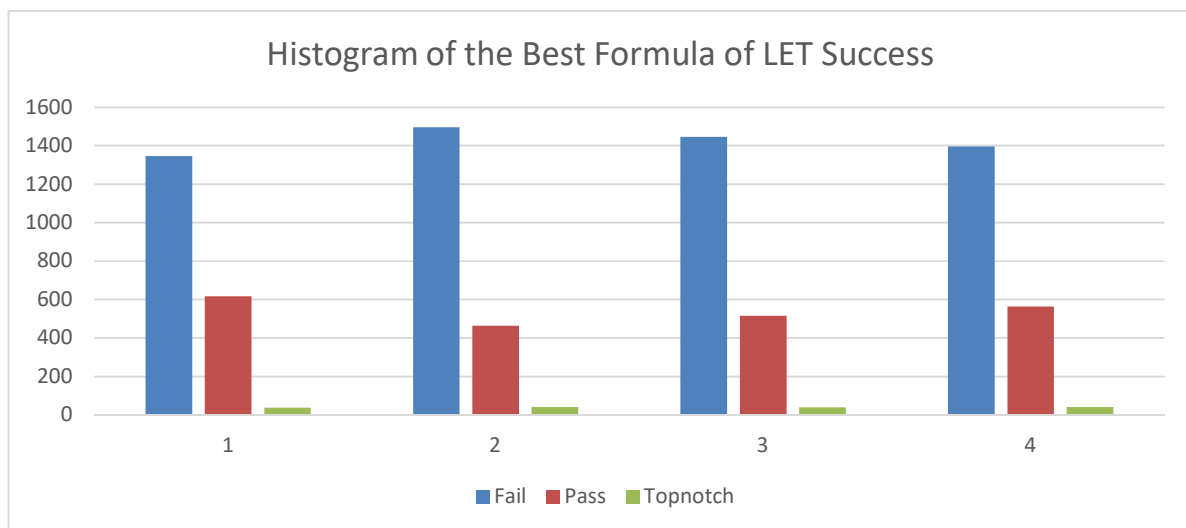


Figure 5 showed that in terms of fail rate, the second formula posted the highest, followed by the third, fourth, and first formula respectively. In terms of pass rate, the first formula registered the highest percentage, followed by the fourth, third, and lastly the second. In terms of topnotch, the figure shows no significant difference in terms of percentage. This means that the best formula to LET success is the first formula which is 40% Knowledge + 30% Skills + 20% Attitudes + 10% Habits.

Conclusion:

The artificial world created has revealed that the formula of LET success is 40% Knowledge, 30% Skill, 20% Attitude, and 10% Habit. However, such formula may not be successful if the below average social atoms are greater in number with that of the above average and average social atoms. The dominance of the former may negatively influence the latter hampering success in the LET since there is a greater chance that recurrent interactions will occur among them. Thus, positive adaptation will only occur when purposive and meaningful

interactions generally take place between the above average and average social atoms so as to attain optimum results in the LET.

Suggestions and Recommendations:

The following recommendations are created out of the findings of the study:

1. The Commission on Higher Education can implement a policy that will set the general standards in admitting “only” the best aspirant students who will take the education program across all private and public colleges and universities in the country. This is to make sure that all education graduates are of great quality and competence.

2. All private and public colleges and universities can implement the regulation of an average mark of 80% across all the collegiate levels. Failure to do so will require a removal examination, if failed, students will be advised to be transferred to another degree program other than education.

3. The Commission on Higher Education can create a syllabus model based on the formula of LET success is 40% Knowledge, 30% Skill, 20% Attitude, and 10% Habit so that instructors and professors can infuse it in their instruction. Moreover, the formula is proven to yield higher success results in LET provided that education students are classified as above average and average.

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