Adversity quotient and logical thinking skills of prospective primary school teachers

M G Ristiana¹, E Istianah² and D F Pratama¹

¹Institut Keguruan dan Ilmu Pendidikan Siliwangi, Jl. Terusan Jenderal Sudirman, Cimahi 40526, Indonesia
²SMA Negeri 23 Bandung, Jl. Malangbong, Antapani, Bandung 40291, Indonesia

Email: mgristiana@ikipsiliwangi.ac.id

Abstract. A teacher should have a good teaching skill for making a better generation later. Based on researcher questionnaire before this research, teacher in school still haven’t teach a real concept to their students. Therefore, to prevent this phenomenon they need a good teaching strategy. Logical thinking skills and adversity quotient are the important things that they need to make the strategy. The aim of this research is to analyse prospective primary school teachers’ logical thinking skills and adversity quotient. In order to do so, we set up a qualitative descriptive method with 40 students as participant. Test of logical thinking skills about mathematics, questionnaire and interview given to them. The results showed that there are 15% of climber category, 72.5% of camper category and 12.5% of quitter category. The logical thinking skills of the students following their adversity quotient, the students that in climber category have a very good logical thinking skills, in camper category have good logical thinking skills, and in quitter category have a bad logical thinking skill. Based on the results, we concluded that prospective primary school teachers still in camper category and have a good logical thinking skill.

1. Introduction
Based on UU RI number 14 2005, a teacher should have four competence, (1) pedagogy; (2) personality; (3) social; and (4) professional. Therefore, a teacher should have a good strategy when they teach in the class, especially in primary school. Logical thinking skills are needed for this, it’s a thinking process that use logical and reason consistently and systematically so that have a conclusion to be used as a solution. A teacher with a good logical thinking skill will have a solution for any problem in class by considering various kind of things, data, knowledge, etc. [1-3]. There are 5 steps of logical thinking skills, there is a clear purpose; systematic planning; used any information; reasoning; and draw a conclusion [4]. Someone has a good logical thinking when they can draw a right conclusion, prediction, correlating at least two variables, analogize, proving and set analyzing and synthesis from some cases [5,6].

Based on researcher simple test about addition and division fraction before this research, teacher in school still haven’t teach a real concept to their students. They just give it to the students and the students should remember it, not understanding it. Apparently, not only the students that remembering the concept, even their teacher still remembering the concept, not understanding it [7-11]. Figure 1 shows that they just give an excuse that the method is indeed like that. This is the concern of us that we want to see how the logical thinking of prospective teachers, especially in primary school. Because primary school is the foundation of all concepts that we will learn later.
Besides that, adversity quotient is needed too for making a good strategy when teaching, especially in primary school. A teacher should have high adversity quotient, its because they will have a huge responsibility to make a better generation. Stoltz argued that success its not enough just depend on intellectual, the role of adversity quotient is also needed to reach that [12]. Adversity quotient is an ability to face any difficulties with observing and processing the difficulties into a challenge to be resolved [13-15].

Stoltz divide adversity quotient into five components which is the main dimension to measure people adversity quotient. Control dimension, that measure how someone responds to difficulties. Origin dimension, that measure how someone know well the source of the difficulties that they face. Ownership dimension, that measure how someone fell to have a responsibility for the difficulties. Reach dimension, that measure how someone reach the solution for the difficulties. The last is endurance dimension, that measure how someone survive when they face difficulties [16,17]. Stoltz also make a categorize of adversity quotient, divided into three categories. Quitter, someone that doesn’t have desire to accept challenge in their life. They tend to avoid difficulties and not excited when they should face it [18]. Camper, someone that want to try to solve difficulties but not with maximum effort. When they find a dead end, they tend to surrender to find the best solution, so that the problem not resolved properly. The last is climber, someone that continuously survive and tend to find the best solution when they face difficulties. For example, in working on math problems, the quitter category doesn’t yet have the independence to solve the problems, they still need others to solve it. The camper category has the independence to solve the problems, but still not systematically and tend to solve the problem not with the best effort. And the climber category they have analytic anticipation which means they can predict, make a plan to solve it, and analyzing properly [19].

Therefore, this study aims to see more about adversity quotient and logical thinking skills of prospective primary school teachers. We hope this research can help many people, especially prospective teacher. So that teacher will have enough knowledge about what they will to do first before teaching in class.

2. Method
This research was conducted to 40 students prospective primary school teachers in Cimahi. We was the main instrument of this research, also we used the additional instrument such as test of logical thinking, questionnaire, and an interview. The procedure was (1) preparing all of the instrument; (2) giving the logical thinking test and questionnaire; (3) analysing the answer of the test and questionnaire; (4) interviewing participant about the answer of the test and questionnaire; and (5) making a conclusion with all of data that we had.

The test has four questions that and have been validated by experts. The question contains various kind of difficulties, from easy one until which requires more effort to solve it. The questions of the test can see in Figure 2. Moreover, the questionnaire and the interview instrument also has been validated by experts. We conduct the test and the questionnaire first, then analyse it for further to be the material of the interview. After that, we try to make a conclusion by analysing all of the data we have (test, questionnaire and interview).
Figure 2. Four questions of the logical thinking test

We processed the data by reducing it first to sort which is important and which is not important, then we served the data into a narrative text, last we analysed it and made a conclusion based on the results of the analysis that we had.

3. Results and Discussions

3.1. Results

Based on the questionnaire of adversity quotient in the Table 1, we have 5 prospective primary school teachers in the quitter category (12.5%), 29 prospective primary school teachers in the camper category (72.5%) and 6 prospective primary school teachers in the climber category (15%). This data helps us to discuss about logical thinking skills of prospective primary school teachers by the adversity quotient category.

| Adversity Quotient Category | Total |
|-----------------------------|-------|
| Quitter                     | 5     |
| Camper                      | 29    |
| Climber                     | 6     |
| **Total**                   | 40    |

Both test and questionnaire conducted together to 40 prospective primary school teachers. Then, from 40 prospective primary school teachers, we reduce it into nine persons. The nine person is containing with 4 persons in quitter category, 2 persons in camper category, and 3 persons in climber category. After they interviewed, we try to write all of the data narratively to convenience us in analyzing the data.

Based on Stoltz research, the quitter category of prospective primary school teachers said that they won’t have any problems in their life [12,13]. They will have serenity if they don’t have a problem. This shows that if they have a problem, they tend to avoid it instead face it. Whereas, with problems or difficulties they will learn what life means and their mind will grow along with many problems encountered. The camper category of prospective primary school teachers said that they will face the problems first, but if they find a dead end, they will surrender [16,17]. Most of prospective primary school teachers that conducted in this research is in the camper category. They tend to get things done
improperly, not with the best effort that they have. While the climber category of prospective primary school teachers is never giving up when they face any problems [12,13]. They will do whatever they can to solve their problems. By using the best effort, they will have the best solution of any problems they face and they will grow as long as they face many problems in their life.

Then, we analyze the logical thinking skills which represents all prospective primary school teachers in each category that participated in this research.

**Figure 3.** Answer of prospective primary school teacher that represent participant in quitter category

First we analyzed the answer that represent all participant in quitter category. We interviewed them and we found that when they face the first problem, they just sum three numbers until they have the triangle circumference without thinking whether it will be a triangle or not. Figure 3 shows that they just sum three numbers 4.5cm, 4.5cm and 3cm without thinking whether it will be a triangle or not. Whereas if we try to construct a triangle with that, it won’t be a triangle.

**Figure 4.** Answer of prospective primary school teacher that represent participant in camper category

From Figure 4 we know that they can answer the third problem, and it properly done. We interviewed them about their answer and they can answer perfectly as we expected. However, when we made a new problem for proving the formula of triangle with square or rectangle, we found something from them. We asked them a triangle formula if we make a triangle with one point on the center of one side of the square or rectangle. They can’t answer it and tend to said confused instead trying to solve that problem first.
Based on Figure 5, we know that the participant in climber category have done the problem properly. We interviewed them and when they were given a new problem they tried to solve the problem that we gave. We found that they answer the new problem correctly with prediction, plan, and a good strategy.

3.2. Discussions

Based on the results, we can see that prospective primary school teachers in quitter category tend to surrender instead face it first when they have a problem. They just said “it’s confusing” as if they won’t to try solve the problem first. The logical thinking skills of prospective primary school teachers in quitter category is not good as we expected [12-14,17]. They tend to solve something without the best effort they can, without thinking the other aspects of the problem, so that the solution will not the best solution.

Prospective primary school teachers in camper category will try to solve the problem with their best effort. However, when they found a dead end they will surrender and won’t to looking for another way to have the best solution [16,20,21]. They tend to try solve the problem first, but when they found a dead end, they will said “it’s hard to do” as if they said “okay, I’m done with this, it’s quite enough”. The logical thinking skills of prospective primary school teachers in camper category is good enough as we expected. They have a plan, prediction, and good strategy, but when they found a dead end, they tend to finish it instead looking for another way. So that, they will have a good solution but not the best solution.

Different from the others, prospective primary school teachers in climber category will fight and keep fighting to have the best solution of their problems. When they found a new problem, they will looking for a way with prediction, plan, and a very good strategy to solve that problem. The logical thinking skills of prospective primary school teachers in climber category is very good as we expected. They have a plan, prediction, and very good strategy to solve their problem [12-14,22]. When they found a dead end, they tend to looking for a new way to have the best solution for that problem. So that, they will have a good solution, even it’s the best solution.

4. Conclusion

Based on the results and discussions, prospective primary school teachers still in camper category. Adversity quotients’ prospective primary school teacher in climber category is still slightly. Whereas, a teacher with the adversity quotient in climber category are very needed, especially in primary school. Although they still in camper category, they have a good logical thinking skill. So, we can conclude that
some of prospective primary school teachers have a good logical thinking skill but still in camper category.

5. Acknowledgments
The author thanks to head department of PGSD IKIP Siliwangi who has given permission to conduct this research, also to all prospective primary school teachers that have been participated in this research.

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