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Documenting Undocumented Motives Influencing the Career Choice of the First-Year Science and Math Student Teachers in Indonesia

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Abstract

The aim of this study was to investigate the motives that were instrumental in driving the first-year science and math student teachers to be a teacher at one public university in Sumatra, Indonesia. A questionnaire and semi-structured interviews were used to collect the data. 378 participants completed questionnaires consisting of 318 females and 60 males while the interview data were collected from voluntary participants. The data of the fulfilled questionnaires were calculated as percentage of their whole results while the data of the interviews were carefully analysed by looking at the responses from all interviewees. Our results indicated that there was a trend among participants to regard highly on first altruistic, second intrinsic, and third extrinsic motives to be a teacher as a career by going into teacher education programs. Policy implications are also discussed.

Keywords: motives, student teachers, science and math, teacher education

Introduction

Recruiting qualified future teachers is critical to improving primary and secondary education and to achieving quality education. Yet, many developed and developing countries are facing major difficulties in recruiting enough qualified and quality student teachers to replace the huge quantities of teachers who will be pensioned off in future (Organization for Economic Cooperation and Development [OECD], 2005), particularly to replace science and math teachers as teacher education programs will compete against other non-teaching programs for the most talented young people. The questions are: who are the future science and math teachers studying in teacher education programs? And what drives them to start becoming a teacher? These are the questions confronting teacher education providers (e.g., teacher training institutions, institutes for teacher education) as it is a recognized fact that teacher education programs take inputs (student teachers) from senior high school graduates and their outputs (trained teachers) goes to serve in primary and secondary education sectors after graduating. These questions are particularly important given that the triumph in having quality education may be depended on the ability of teacher education institutions to have qualified school graduates to be student teachers who can uphold their responsibility for building a nation future through teaching science and math. Key to answering these questions is knowing what encourages people to be student teachers and what motives attract them to enter teacher education programs in order to be future science and math teachers.

Evidence from old and recent studies has documented over the years that motives or factors for start becoming a teacher a teacher vary among different individuals. In general, existing literature suggests that individuals chose teaching due to altruistic, intrinsic, and extrinsic motives (e.g., Lee, 1928; Gould, 1934; Langston, 1951; Fielstra, 1955; Haubrich, 1960; Lortie, 1975; Wood, 1978; Jantzen, 1981; Book, Freeman, & Brousseau, 1985; Book & Freeman, 1986; Joseph & Green, 1986; Marso & Pigge, 1986; Weinstein, 1998; Osborn & Broadfoot, 1993; King, 1993; Yong, 1995). These motives include altruistic motives (e.g., shaping the future of children, having socially worthwhile job, loving to work with children), intrinsic ones (e.g., becoming a teacher suits my disposition, providing chances for academic advancement, motivated by good educators), and extrinsic reasons or motives (e.g., teaching profession offers good salary, not having other choices, and teaching profession gives extended holidays) (Harms & Knobloch, 2005; Hobson et al., 2004; Kyriacou, Kunc, Stephens, & Hultgren, 2003; Moran, Kilpatrick, Abbott, Dallat, & McClune, 2001).

For instance, in the United States, Fielstra (1955) who surveyed 230 UCLA college of education students found that the most influential motives in causing them to decide to become teachers were “(1) to help youngsters develop sound values, desirable citizenship attitudes, (2) to work with children and adolescents and to be an inspiration to them; (3) to make a significant contribution to the preservation and extension of the democratic way of life; (4) to work in a profession which makes possible and encourages continuous growth while in service; and (5) to work in a subject-matter field of great interest and to help youngsters gain knowledge and skill in that field” (p. 661). King (1991) who studied 41 prospective teachers and beginning teachers found that the chances for working with children, the sense that their skills fitted teaching and the idea that teaching impacted on the progress of society were the most influential motives driving them to be a teacher. In general, the existing literature has indicated that intrinsic, altruistic, and extrinsic purposes or motives have become influentially contributing determinants for individuals for becoming a teacher by entering teacher education programs.

While these studies provide readers with a growing insight into the influential reasons or motives for becoming a teacher, most of these studies, however, are from outside Indonesia and tend to place all student teachers (e.g., majors, semesters) in one group and several of these reports or studies had not particularly focused on the views of student teachers from various majors or semesters (e.g., social science student teachers, science student teachers, first semester student teachers). Little research, however, (e.g., Mukminin, Rohayati, Putra, Habibi, & Aina, 2017; Mukminin, Kamil, Muazza, & Haryanto, 2017; Syaiful., Mukminin, Masbirorotni, Aina, Habibi, Sari, Harja, & Triana, 2018) has specifically focused on Indonesian undergraduate EFL student teachers. Our research was an effort to fill the gap in the global student teachers works and to fill the scarcity of reports and evidence on student teachers in Indonesia from various teacher education programs. Our study focused on the first-year math and science student teachers as based on our literature studies, we found that the first year math and science student teachers' motives to be a teacher in Indonesia are still understudied. The aim of this study, within the altruistic, extrinsic, and intrinsic reasons and motives, was to investigate the motives that were influential in driving the first-year math and science student teachers to be a teacher at one public university in Sumatra, Indonesia. The guiding question in this study was: What are the altruistic, extrinsic, and intrinsic reasons or motives affecting the first-year math and science student teachers to become a teacher by choosing teacher training education programs at one public university in Jambi Province, Indonesia?

Methodology

Research Design and Participants

We adopted the mixture of quantitative (questionnaire) and qualitative (interview) methodologies allowing us to investigate student teachers' feelings and thoughts related to the influential motives to be a teacher by entering teacher training education programs. 378 first-year math and science student teachers from four teacher training education programs involving 318 females and 60 males participated in this study. Of 318 females, 98 participants were biology education student teachers, 73 of them were chemistry education student teachers, 84 of them were math education student teachers, and 63 of them majored in physics education student teachers. Moreover, of sixty male student teachers, 17 of them were from Biology education, 11 were from Chemistry education, 18 were from Math education, and 14 of them were from physics education. Our participants' age was from seventeen to twenty years old. So, all student teachers who contributed to the questionnaire in this study majored in biology, physics, chemistry, and math teacher training education programs.

In this study, to collect data from the interviews, in our demographic information sheet, we asked student teachers to state whether or not they wanted to participate in the interview. Ten first-year science and math student teachers were willing to participate in the interview processes, consisting of three mathematics education student teachers, three physics education student teachers, two chemistry education student teachers, and two biology education student teachers.

Table 1. Participants' Background Information for interviews

No.	Student teachers	Gender	Departments	No.	Student teachers	Gender	Departments
1.	ST5	Male	Math	6.	ST10	Male	Physics
2.	ST6	Female	Math	7.	ST11	Female	Chemistry
3.	ST7	Female	Math	8.	ST12	Female	Chemistry
4.	ST8	Female	Physics	9.	ST17	Female	Biology
5.	ST9	Female	Physics	10.	ST18	Female	Biology

Data Collection

This study drew upon a background survey, questionnaire, and semi-structured interviews. To those who were interested in participating in our study, we provided them with an informed consent form notifying their cooperation to participate. Once we had their consent form, we distributed the questionnaire to them constructed comprising two sections. Section 1 was to ask our student teachers' background information including year, age, and gender) while section 2 asked our participants to choose their preferences from 12 specific motives consisting of 4 altruistic, 4 intrinsic, and 4 extrinsic motives (Lee, 1928; Gould, 1934; Langston, 1951; Fielstra, 1955; Haubrich, 1960; Lortie, 1975; Wood, 1978; Jantzen, 1981; Book, Freeman, & Brousseau, 1985; Book & Freeman, 1986; Joseph & Green, 1986; Marso & Pigge, 1986; Weinstein, 1998; Osborn & Broadfoot, 1993; King, 1993; Yong, 1995) (see Table 2, 4, and 6). Our questionnaire was self-reporting statements starting from SA (Strongly Agree), A (Agree), D (Disagree), and SD (Strongly Disagree). Additionally, during our analysis, some participants gave their responses to one of the statements with NA (No Answer).

To deal with the questionnaire reliability, we tried 12 specific motives out to the non-real participants by using "a think – aloud technique." Of all participants, 11 student teachers were willing to participate in the pilot. Through this technique (Johnson & Christensen, 2008), we asked our non-real participants to share their opinions about the 12 specific motives. By using this technique, we were able to obtain information from our non-sample participants obtained regarding the selected motives. For example, one participant shared with us her opinion that Indonesian version of the 12 specific motives should be provided for helping our sample understand the items in the questionnaire. Another non-real participant also suggested that it would be better if the four preset response options were provided for the real sample.

For our semi-structured interviews, 10 student teachers were willing to be interviewed. The interviews conducted in Indonesian were audiotaped and the duration was between twenty and thirty-five minutes. Each student teacher was interviewed two times. We did twice as some participants were not ready or did not feel comfortable when they were interviewed or we needed to confirm what we had transcribed from the interviews. During the interviews, we asked our student teachers why they entered teacher education programs, what motives caused them to enter the program, and whether it had been a right decision, or after graduating if they wanted to become a teacher or not. We questioned every participant in the interviews regarding the motives mostly prompted him or her to be a teacher by pursuing credentials in a college of education program.

Data analysis

The primary data sources for this inquiry were questionnaire and semi-structured interviews. We analyzed the 378 completed questionnaires. We analyzed each student teacher's responses related to motives (altruistic, intrinsic, and extrinsic). We also counted the frequency of every item by presenting the percentage of its total result. For the data from the interviews, first we transcribed all the data in order to help us to scrutinize and analyze all the data line by line and sentences by sentences which help us to categorize the data into three general motives (intrinsic, extrinsic, and altruistic). Next, we conducted a within case analysis (Miles & Huberman, 1994). In this process of analysis, we directly transcribed, analyzed, and categorized the data from the first interviewee into three general motives (extrinsic, intrinsic, and altruistic). We went on with such processes to the remaining interviewees. Additionally, all researchers read

each interviewee's transcripts carefully, denoted pertinent portions of accounts, grouped pertinent portions of accounts into extrinsic, intrinsic, and altruistic motives that had been designed. Next, we conducted a "cross-case analysis" (Miles & Huberman, 1994). We did the processes of reanalysis and comparisons for all transcripts among ten first-year science and math student teachers. We did such processes was to discover the regularity of accounts amongst ten first-year science and math student teachers related to extrinsic intrinsic, and altruistic factors or motives.

To address the "trustworthiness" of our data analysis and results, member checking was used (Creswell, 2007; Maimunah, Marzulina, Herizal, Holandyah, Mukminin, Pratama, & Habibi, 2018; Merriam, 1998; Mukminin, 2019). It meant that we confirmed both with the 10 interviewees and with other involved researchers. We gave back the data and results to every interviewee. This was done to guarantee that every interviewee agreed with the information or data which we took from them. We were happy that our participants let us utilize their data for our research (Mukminin, Haryanto, Sutarno, Sari, Marzulina, Hadiyanto, & Habibi, 2018; Muazza, Mukminin, Habibi, Hidayat, & Abidin, 2018; Prasojo, Habibi, Mukminin, & Muhaimin, Taridi, & Saudagar, 2017).

For the ethical considerations and for protecting our participants' rights, we masked all identities of our participants including their names, places, and research locations by using pseudonyms. Also, our participants to participate in our study were entirely volunteer.

Findings

The following findings acquired from the questionnaire and interviews presented science and math student teachers' purposes or motives to be a teacher by entering teacher education programs.

Altruistic Motives

As was previously stated in this article, altruistic motives were related to the views of teaching profession as a socially or publicly respected career (Kyriacou & Coulthard, 2000; AUTHOR et al., 2017a). We used 4 altruistic reasons or motives including loving to work with kids or children, wanting to shape the future of kids of children, teaching has a socially worthwhile profession, and answering a calling) in this study as displayed in Table 2 below.

Table 2. Altruistic motives (N=378)

Altruistic Motives	SA		A		D		SD		NA	
	f	%	f	%	f	%	f	%	f	%
Wanting to shape the future of children	169	44.7	193	51	5	1.3	1	0.3	10	2.6
It has a socially worthwhile job	144	38.1	210	55.5	8	2.1	2	0.5	14	3.7
I love to work with children	88	23.3	231	61	51	13.5	5	1.3	3	0.8
It is like to answer a calling	67	17.7	221	58.5	70	18.5	7	1.8	13	3.4

As indicated in Table 2 and after we combined between the percentages of the participants reported "strongly agree" and "agree," the rank order of altruistic motives rated most highly by the first-year science and math student teachers were (1) "I want to shape the future of children" (95.7% - ranked first), (2) "it has a socially worthwhile job" (93.6 % - ranked second), (3) "I love to work with children" (84.3 % - ranked third), and (4) "it is like to answer a calling" (76.2% - ranked fourth). These findings were supported by the interview data with the ten student teachers.

We categorized the data of interviews into 4 sub-categories or themes within the altruistic motive as the comprehensive theme. In Table 3, we displayed each participant's response to each sub-theme.

Table 3. Qualitative Findings in Altruistic Category (N=10)

<u>Altruistic Motives</u>	<u>n</u>	<u>Types of the First-Year Student Teachers' Responses</u>	<u>ST</u>
Sub-theme 1: wanting to shape the future of kids or children	10	I like helping kids to learn math as I believe math is not hard. [smiling]	ST5
		Many people avoid math and hate math teachers. I believe I can change kids' attitude if I become a teacher. [high spirit]	ST6
		I want to change future kids' mind for learning math.	ST7
		Becoming a teacher is my dream and I want to shape future physics teachers.	ST8
		I want to be a science teacher, I want to help young kids to study science.	ST9
		I feel I can help our government to influence future kids to learn physics.	ST10
		My mission is to shape future of children in learning Chemistry.	ST11
		For some kids, Chemistry is a scary subject, I like to make them love the subject. [highly motivated when she was talking]	ST12
		I chose Biology education is to help young people to love biology.	ST17
		The future of Biology education is on young people, I need to learn it and helping children to make them succeed in learning it.	ST18
Sub-theme 2: Having a Socially Worthwhile work	10	Being a social person by becoming a future math teacher...that's my goal, you know.	ST5
		I want to contribute to my society through choosing Math education.	ST6
		Choosing teacher education means I choose to be a social person in sharing knowledge, particularly math.	ST7
		Well, I like Physics and I want to be a future and kind teacher for everyone	ST8
		I worked hard to be accepted in Physics education program, I want to make a difference for my society	ST9
		I think remote areas need more Physics teachers, I want to be in one of the places.	ST10
		Indonesia has less Chemistry teachers...I want to contribute to my society. [looked unhappy]	ST11
		It is my dream to become a Chemistry teacher and I want to help my society.	ST12
Sub-theme 3: Loving to cooperate with children	10	I will try my best to be a biology teacher for my society.	ST17
		I am happy with biology education. I want to help my society develop better education.	ST18
		I think many kids are scared with Math. I love kids and want to help them.	ST5
		I want to work with young kids and want to help them learn math.	ST6
		I want to make math a fun subject for kids at school and at home.	ST7
		Physics subject should be taught with fun and I want to make it fun in teaching it to kids.	ST8
		Physics education is my dream...I believe I can work with it and help kids.	ST9
		I was surprised that I was accepted in Physics education. I love it and want to be a good teacher for everyone.	ST10
		Being a Chemistry teacher is not easy but I believe I can make it and use my ability to help young people in learning it.	ST11
		One of my reasons to choose Chemistry education is because I want to keep in touch with young people and help them have better education.	ST12
I want to help young people to love science or biology.	ST17		
I think that choosing teacher education will benefit for many people, particularly young people.	ST18		

Sub-theme 4: like to answer a calling	4	I never imagine that I will be in Math education program. It is a competitive and tough program. I just feel that I need to register to the program whatever the result is because I want to be a math teacher.	ST6
		I feel I am destined to be a physic teacher after I struggled a lot during my secondary school.	ST9
		What has driven me to choose Chemistry education program? Is because I see Indonesia having lack of Chemistry teachers. It is my motive to take part of helping the country.	ST12
		My family did not really support my choice to be a biology teacher, but I decided to take it.	ST17

The analysis of the ten participants' answers as presented in Table 3 shed some lights on the kinds of feelings, perceptions, and thoughts that had driven them to start a journey to be a teacher. It is obvious that the statement, "I want to shape the future of children" is one of the influential altruistic motives attracting them to go into teacher education programs. Ten participants across majors reported that teaching career had a big influence on forming the future of young generation. For example, ST6 who majored in math reported, "Many people avoid math and hate math teachers. I believe I can change kids' attitude if I become a teacher." ST12 majoring in chemistry added, "For some kids, Chemistry is a scary subject, I like to make them love the subject." These kinds of responses suggest that participants had a sense of responsibility for helping children to form their hope through education and their majors. They planned their future work enabling them to form the country's future generation.

The next most important motive on the decisions to start a journey to be a teacher was "It has a socially worthwhile job." Ten first-year science and math student teachers reported that through becoming a teacher, they made a contribution to their society because they thought their society had already given them many things. For instance, ST5 majoring in math expressed, "Being a social person by becoming a future math teacher...that's my goal, you know." His response indicated that becoming a teacher might provide him with a chance for facilitating his people to be a better community. Another salient motive driving participants to be a teacher was the item "I love to work with children." Participants reported that caring children was one of their salient motives to go into teacher education programs. For example, in our interview data, ST8 majoring in physics reported she desired to be a physic teacher and liked to teach it to children through fun learning, "Physics subject should be taught with fun and I want to make it fun in teaching it to kids."

Another interesting story was shared by ST5 majoring in math, "I think many kids are scared with Math. I love kids and want to help them." She knew that math scared some kids and she wanted to help them to learn it. The last influential altruistic motive influencing participants to be a teacher was the item "It is like to answer a calling." The decision-making to enter a teaching education program was probable to deliberate an appealing (calling) for our participants either in the questionnaire or in the interviews. However, the results of the analyses among 10 our participants who had been interviewed indicated that only four participants provided us with their responses as described in Table 3.

Intrinsic Motives

In the study informed in this article an attempt was tried to examine intrinsic reasons or motives that were contributory in driving participants to start a journey to be a teacher by entering teaching programs. We used four specific intrinsic motives ("To be a teacher fits my personality, it offers opportunities for my academic development, I am inspired by good teachers (role

models), I am interested in teaching activity”). In this study, intrinsic motives are related to the characteristics of the work action itself (Yong, 1995; Kyriacou, Hultgren, & Stephens, 1999; Manuel & Hughes, 2006; Low, Lim, Ch’ng, & Goh, 2011). Table 4 and 5 describe the results of the questionnaire and interviews data.

Table 4. The first-year science and math student teachers’ intrinsic motives (N=378)

Intrinsic Motives	SA		A		D		SD		NA	
	f	%	f	%	f	%	f	%	f	%
To be a teacher fits my personality	55	14.5	242	64	75	19.8	6	1.6	0	0
Offering or providing opportunities for my academic development	81	21.4	208	55	89	23.5	0	0	0	0
I am inspired by good teachers (role models)	107	28.3	188	49.7	55	14.5	1	0.3	27	7.1
I am interested in teaching activity	97	25.7	130	34.4	149	39.4	2	0.5	0	0

Under the intrinsic category, a closer look at the combination between the percentages of the participants reported “strongly agree” and “agree” from the questionnaire data in Table 4 indicated that 78.5% of participants reported that their desire to be a teacher was shaped by the item “To be a teacher fits my personality” (ranked first) while 78% of them were driven by the item “I am inspired by good teachers (role models)” (ranked second). 76.4% of our participants attributed their decision-making to the item “It offers opportunities for my academic development” (ranked third) while 60.1% of our participants received the impetus through the item, “I am interested in teaching activity” (ranked fourth). It seems realistic to take on that the decision-making to be a teacher is ardently greatly driven by various motives. To better understand the first-year science and math student teachers’ intrinsic motives qualitatively, this study was able to interview ten participants. The examples of statements made by participants are presented in Table 5.

Table 5. Qualitative findings: first-year science and math student teachers’ (st) responses to each sub-theme in intrinsic category (N=10)

Intrinsic Motives	n	Types of the First-Year Student Teachers’ Responses	ST
Sub-theme 1: To be a teacher fits my personality	10	I do not know if teaching is related to my personality, but I like to help my friends if they have Math problems.	ST5
		In senior high school, my teachers told me that becoming a teacher would be a respectable career for me.	ST6
		I like to help my brothers and sisters in learning. They say that I am their teacher.	ST7
		Becoming a teacher is my dream...I think it fits my character.	ST8
		I love science...I believe teaching fits my personality and becomes my destiny.	ST9
		My dad always says, “You will be a great teacher, you care others.”	ST10
		I like Chemistry. It is a boring subject for others, but not for me.	ST11
		My friends say that my personality and the way I talk to others like a teacher.	ST12
		Although my parents disagreed with my decision...I like teaching, it fits me.	ST17
		To be a biology teacher is my dream. It suits me as I like natural science.	ST18
Sub-theme 2: It offers opportunities for my	10	I chose teacher education because I widen my knowledge in Math.	ST5
		My reason to choose teacher education is because I will be a lifelong learner.	ST6
		Teaching profession will allow me to meet many students and people from whom I can learn and improve my skills in teaching Math.	ST7

academic development		It is a good profession. I have an opportunity to keep learning as a physic teacher.	ST8
		Well, teaching profession will provoke me to keep learning new things	ST9
		By teaching, I will get more experience of learning new things from my school...	ST10
		I chose teacher education because it allows me to participate in training, seminars, and conference from which I learn Chemistry a lot.	ST11
		Teacher profession is different from other professions. We need to update our knowledge and skills. It is my reason to choose my current major.	ST12
		As a future Biology teacher, I can always learn from humans and environment.	ST17
		Science, especially Biology, needs more productive and innovative teachers.	ST18
	Sub-theme 3: I am inspired by good teachers (role models)	10	Math is hard, but my teacher did a great job and I think I can do it too.
I want to make Math a fun subject like my teacher did.			ST6
The way my teachers taught in the class was amazing. He inspired me.			ST7
I just wanted to do what my senior high school teachers did to me, amazing.			ST8
You know inspired teachers will produce inspired future teachers. That is my reason to choose teacher education.			ST9
My teacher is my role model.			ST10
I like my teachers from elementary to senior high school, they cared students and I want to get back to my school after graduating.			ST11
Good teachers will have good teachers and they inspire others to do the same thing. I love my teachers in all of my levels of education.			ST12
I like Biology and I like the way my teacher taught it. I want to do the same thing in future. It is great to have an inspired teacher.			ST17
I think I chose teacher education because of my senior high school teachers. They all cared and helped their students. No discrimination.			ST18
Sub-theme 4: I am interested in teaching activity	10	My motive to choose teacher education is because I dream that all my educational activities will guide students as good as possible.	ST5
		Teaching activities will be challenging such as you need to provide materials or to have good classroom management.	ST6
		Teaching activities are not easy. They are hard, but I love my future profession. It is a kind of a challenging job.	ST7
		I love sharing information with my friends. It is like teaching too.	ST8
		Teaching is tough, I think. I will meet many kinds of behaviors, but I will like it as I like to conquer something.	ST9
		I know that teaching activities are not simple. I will be challenged by student behavior, noisy classes, parents' complaints, lack of teaching materials, and lack of fund. But you know, I like being a teacher and hope I will be able to cope with those things.	ST10
		Naughty students and bad school facilities will challenge every teacher in Indonesia, but my interest in being a teacher is still there.	ST11
		I like teaching activities because I will not only deliver materials but also build students' future life.	ST12
		Teaching is hard and I believe my program will help me. I will learn everything that they prepare for me.	ST17
Teaching activities can be frustrated if you do not like teaching. I will prepare myself during my program.	ST18		

The examples of qualitative evidence related to the intrinsic motives presented in Table 5 indicated various, interesting, and unique thoughts and perspectives that were influential in driving participants to start a journey to be a teacher through teaching programs. All participants irrespective of their majors reported that the sense of “being a teacher fits their personality” was what directed their decision-making to enter teacher education programs. For example, ST6 majoring in math reflected, “In senior high school, my teachers told me that teaching would be a good profession for me.” ST12 majoring in chemistry added, “My friends say that my

personality and the way I talk to others like a teacher.” Both of them believed that their personalities fit teaching profession and it was convinced by people around them, empowering them to go into teaching programs. Additionally, the analysis of the qualitative data also revealed that having opportunities for advancing academic development gave participants a track to the choice to be a teacher. They felt that “Teaching offers opportunities for my academic development” was the impetus for them to go into teaching programs. In the words of two participants, ST8 majoring in physic education reflected, “It is a good profession. I have an opportunity to keep learning as a physic teacher.” Another participant shared the same story with a different way, “As a future Biology teacher, I can always learn from humans and environment” (ST17 majoring in Biology Education).

Furthermore, answers from participants indicated that they received the motive to become a teacher through the models or examples of people around them who were teachers. The following excerpt is representative of this type of response. “Math is hard, but my teacher did a great job and I think I can do it too.” (ST5 majoring in math) or “I like my teachers from elementary to senior high school, they cared students and I want to get back to my school after graduating” (ST11 majoring chemistry). Our participants entering teacher education programs were strongly inspired by their elementary or high school teachers (role models) who helped them a lot in learning and they wanted to do the same thing. Irrespective of their majors, a closer look at the interview data indicated that although participants realized that teaching was not easier, their interest in teaching activity was one of the influential intrinsic motives driving them to enter teacher education programs. Typical comments, for example, were voiced by ST7 majoring in math, “Teaching activities are not easy. They are hard, but I love my future profession. It is a kind of a challenging job.” She knew that teaching was not an easy job. But her love with the profession encouraged her to enter math education program.

Extrinsic Motives

Within the extrinsic motive category, the study concentrated on the 4 extrinsic reasons or motives (“becoming a teacher offers good salary, becoming a teacher offers more time for family, I have no other choice, and becoming a teacher offers long holidays”). Table 6 and 7 describe the findings of the questionnaire and interviews data.

Table 6. The First-Year Science and Math Student Teachers’ Extrinsic Motives (N=378)

Extrinsic motives	SA		A		D		SD		NA	
	<i>f</i>	<i>%</i>								
Being a teacher offers good salary	77	20.4	201	53.1	79	20.9	9	2.4	12	3.8
Being a teacher offers more time for family	108	28.6	159	42	79	20.9	7	1.8	25	6.6
being a teacher offers long holidays	82	21.7	119	31.5	134	35.4	22	5.8	21	5.5
I have no other choice	35	9.2	74	19.6	174	46	76	20.1	19	5

A closer look at the mixture of the percentages among the participants reported, “strongly agree” and “agree” from the survey data in Table 6 showed that participants who decided on starting a journey to be a teacher were due to “Being a teacher offers good salary (73.5%, ranked first)” showing that participants thought that being a teacher might provide them with a good income for their life. Other prominent extrinsic motive which influenced 70.6% of participants to enter a teaching program was “Being a teacher offers more time for family (ranked second).”

Additionally, 53.2% of 378 student teachers perceived that “Being a teacher offers long holidays” (in the fourth rank) as the additional pivotal drive of entering a teaching program. However, for the item, “I have no other choice,” it is important to see that the mixture between the percentages of the participants stated, “strongly disagree” and “disagree” from the questionnaire data in Table 6 revealed that 66.1% (in the third rank) of participants reported that they selected teaching programs was not since they had no other selections. Instead, participants entered a teaching program because they wanted to become a teacher. For the qualitative results, various and interesting responses from our participants emerged, we grouped the interview data from ten first-year science and math student teachers into four sub-themes. In Table 7, we organized each first-year student teacher’s response to each sub-theme and the total number of the first-year student teachers (ST) who gave responses within each sub-theme.

Table 7. Qualitative findings: first-year science and math student teachers’ (st) responses to each sub-theme in extrinsic category (N=10)

<u>Extrinsic Motives</u>	<u>n</u>	<u>Types of the First-Year Student Teachers’ Responses</u>	<u>ST</u>
Sub-theme 1: Being a teacher offers good salary	10	If compared with other countries, teacher salary in Indonesia is lower, but it is not my main motive.	ST5
		I love teaching and salary will come from other sources if it is not enough.	ST6
		Teacher salary for teachers who teach in private schools is still low, but my journey still long. Who knows I will be a government employee.	ST7
		If you teach at a good private school, the salary is enough to live in [name of the place]...	ST8
		Salary is important, but if you enjoy teaching, you will make it second priority if you are single [laughing]	ST9
		For now, I do not focus on talking about salary though it is important.	ST10
		Salary is very necessary, but you know...I am not a teacher yet.	ST11
		It is not my reason to select this teaching program. Later I will think about it.	ST12
		I feel I will be a good teacher for government and the salary is enough.	ST17
		I want to be a government employee if I can. So, the salary will be more than enough [laughing], but it is later, not now. Let’s what will happen.	ST18
Sub-theme 2: Being/becoming a teacher offers more time for family	10	I know that as a teacher, we just spend a half day. I like it.	ST5
		This profession is different from others that spend much time outside home.	ST6
		Teaching is suitable for someone like me as a female.	ST7
		Becoming a teacher will allow me to do home activities and school stuff.	ST8
		Being a teacher, we know the schedule at school and we can arrange time for family.	ST9
		I just like becoming a teacher because I have free time for my family after school.	ST10
		One of the important things to be a teacher is that you can help students and your own kids. It is great, Isn’t it?	ST12
		You know what, I am telling you. I plan to have more kids and this profession is good for me as a female. [laughing]	ST17
How about you? You are an educator and you feel the advantages of being an educator. I want that feeling too. [smiling]	ST18		
Sub-theme 3: I have no other choices	10	I don’t doubt with my choice.	ST5
		I just feel that I need to register to the program whatever the result is because I like being a math teacher.	ST6
		This is my priority. I like to change future kids’ mind for learning math.	ST7
		This is my first and last choice...Becoming a teacher is my dream and I want to shape future physics teachers.	ST8
		Well, I am sure my program is the best one ...Through becoming a science teacher, I can help younger people to love science.	ST9

	I like my choice...I feel I can help our government to influence future kids to learn physics.	ST10
	My mission is to shape future of children in learning Chemistry. So, I know my choice is not wrong.	ST11
	Many senior high school graduates like studying Law, Economics, and Engineering, but this is my main choice. [looked happy]	ST12
	I decided to be a biology teacher although my parents disagreed with my decision.	ST17
	It is my future and I like my program.	ST18
	If compared with other professions, teachers get more holidays, I think.	ST5
	Teaching, holidays, and new academic calendars are things that I love from this profession.	ST6
	...I think it is not long holidays, but normal holidays.	ST7
	I choose the program is not because teaching profession offers long holidays, but the schedule of teaching is always fixed.	ST8
Sub-theme 4: Being a teacher offers long holidays	10 I don't think that teaching profession offers long holidays.	ST9
	Well, it is not that long, but when school has a holiday, teacher and student will have too.	ST10
	I think that students will have a long holiday, not teacher.	ST11
	I have no idea because I am not an instructor yet. However when I was a student, I had long holidays and I love it.	ST12
	I think teachers deserve long breaks after teaching full time.	ST17
	I think it is not fully long breaks for teachers...But, I love long breaks. It is like to give me new energy.	ST18

A closer look at the interview data as presented in Table 7 within the extrinsic motives category, various and recurrent expressions, thoughts, and hopes were identified. The participants in this study reported that their decision to be a teacher was not strongly driven by "Being a teacher offers good salary." Although they knew that salary was not high in Indonesia, they still wanted to be a teacher. Some participants even did not prioritize salary as their main motive to become a teacher. Instead, they believed if they became a government employee, salary would not be a problem. For example, ST5 majoring in math expressed, "If compared with other countries, teacher salary in Indonesia is lower, but it is not my main motive." He added, "To be a teacher means to be a social person...It is my goal to choose math program...sharing my knowledge with people whenever they need." He was even committed to be a great teacher, "My motive to choose teacher education is because I dream that all my educational activities will guide students as good as possible." ST5 presented us a picture of a future math teacher that he knew the salary of teacher in Indonesia was not high, but he did not care about it as it was not his major motive.

Also, it is vital to note that the other motive influencing student teachers to decide to be a teacher was they thought that they would enjoy "Being a teacher offers more time for family." For example, ST12 majoring in chemistry reflected, "One of the important things to be a teacher is that you can help students and your own kids. It is great, isn't it?" Another student teacher, ST9 majoring in physic education, convincingly expressed, "Being a teacher, we know the schedule at school and we can arrange time for family." Participants believed that their future profession would make them able to balance between the needs of their family and of their school. Additionally, during the interviews, we asked our participants whether their current choice was the first, second, or the last. We also asked them to express whether they decided to enter teacher education programs because they were not admitted to any other programs. All participants regardless of their majored reported that entering teacher education programs was not their

second or last choice. Rather being a teacher was their main choice. With regards to this motive, one student teacher (ST8) majoring in physic education stated, “This is my first and last choice...Becoming a teacher is my dream and I want to shape future physics teachers.” He added, “I love sharing information with my friends. It is like teaching too.” As presented in Table 7, it is obvious that “Being a teacher offers long holidays” was not mainly instrumental in leading participants to commence a journey to be a teacher although they liked holiday. For example, “I choose the program is not because teaching profession offers long holidays, but the schedule of teaching is always fixed” (ST8 majoring in physic education).

Discussion

Teaching has attracted different individuals for diverse motives as in the situation of the student teachers in this inquiry. Teacher education providers that recruit and prepare future teachers, particularly future science and math teachers are confronted with the need of locating responses of who are the future science and math teachers studying in teacher education programs? And what drives them to be a teacher? An effort had been made to study something about the motives that triggered participants’ decision-making of starting on a journey to become a teacher as a career. Even though we could not claim that this study had found the answers of the multifaceted net of motives triggering the selection of teaching as a career, our results showed a picture that qualitatively and quantitatively different intrinsic, extrinsic, and altruistic reasons and motives were instrumental in leading 378 first year science and math participants to choose teaching programs in order to become a teacher.

Quantitatively and qualitatively, our participants were strongly driven by the desire to take part in shaping the future of children in their society. Quantitatively, we found that “I want to shape the future of children” remained the first uppermost ranked altruistic motive (95.7%) while “It has a socially worthwhile job” (93.6 %) stayed as the second uppermost rated altruistic motive and “I love to work with children” (84.3 %) stood as the third uppermost rated altruistic motive). Kilinc, Watt, and Richardson (2012), Lin et al. (2012) also revealed that “shaping the future of children/adolescents and making a social contribution” remained the most strongly informed motives for selecting teaching as a future career. A number of previous studies, but still relevant to today’s situation, have documented the same findings (e.g., Gould, 1934; Langston, 1951; Fielstra, 1955; Haubrich, 1960; Lortie, 1975; Wood, 1978; Jantzen, 1981; Book, Freeman, & Brousseau, 1985; Book & Freeman, 1986, 1992; Joseph & Green, 1986; Marso & Pigge, 1986; Weinstein, 1988). Our participants were also influenced by what we called “It is like to answer a calling” (76.2% - ranked fourth). This result is supportive to the results of (Lortie (1975) and Low, et al.’s (2012) study.

Similarly, for the intrinsic motives, 78.5% of our participants’ desires to be a teacher were driven by the beliefs that teaching fit their personality. “To be a teacher fits my personality” became the first highest ranked intrinsic motive. The second most highly rated motive was “I am inspired by good teachers (role models)”.78% of participants acknowledged that this motive prompted them to have credentials from a teaching program. Also, previous studies found similar findings such as Lortie (1975), Manuel and Hughes (2006). It is also interesting that 76.4% of our participants attributed their decision-making to become a teacher due to “It offers opportunities for my academic development” (ranked third),” suggesting that they felt that their educational lifecycle would grow by being a teacher in future. Our result concurs with the results of earlier research (e.g., Yong, 1995; Lai, et al., 2005). Last, 60.1% of our participants received the impetus to select teaching programs because they were attracted in the process of teaching activities. Our

results are in line with the results of the earlier research done by Lortie (1975), King (1993), Yong (1995) and Kyriacou, Hultgren, and Stephens (1999), Author, et al. (2017a, 2017b, 2016). The survey data were not conflicting with our interview data as presented in Table 5 that regardless of their major, our participants were driven by intrinsic motives.

For the extrinsic motives, our study revealed that “Being a teacher offers good salary” was the first highest rated motive (73.5%). Although it was highly rated, our interview data indicated that income or wage was not participants’ leading reason to begin a journey to be a teacher to have teaching credentials. Rather, they believed that becoming a teacher would provide them with a good income for their life (job security). The second ranked extrinsic motive which influenced 70.6% of participants to go in a teacher program was “Being a teacher offers more time for family.” Our results are related to the results of earlier studies (e.g., Lin et al., 2012; Kilinc, Watt, & Richardson, 2012; Kyriacou et al., 2003).) It is noteworthy to note that 66.1% (ranked third) of participants reported that they selected to go in a teacher program was since they prioritized it. Our finding is contrary with the results of earlier research including Yong (1995) and Lai, et al. (2005) indicating that people were not confident to obtain teaching passports as they were not admitted by other programs. Additionally, we found that 53.2% of 378 student teachers perceived that “Being a teacher offers long holidays” (ranked fourth) was one extrinsic motive that influenced our participants to go into a teacher education program. Kyriacou, Hultgren, and Stephens (1999), Kyriacou et al. (2003), and King (1993) also revealed the same findings. Our qualitative data also indicated that all participants liked holiday as part of their teaching profession.

Conclusion and Policy Implications

The aim of this study was to investigate the motives that were instrumental in driving the first-year science and math student teachers to be a teacher at one state university in Sumatra, Indonesia. An effort has been made to study something about the reasons or motives pushing the option of teaching as a future career by our participants. Yet from our partial analysis of the first year science and math student teachers’ responses and answers qualitatively and quantitatively, several conclusions can be drawn from the results of our study. It is important to note that the decision-making of starting on a journey to become a teacher as a career by the first year science and math student teachers was quantitatively and qualitatively driven by primarily extrinsic, intrinsic, and altruistic motives. Specifically, the results of our study showed there was a trend among 378 participants to regard highly on shaping the future of children (95.7%), having a socially worthwhile job (93.6 %), loving to work with children (84.3 %), being a teacher fits their personality (78.5%), being inspired by good teachers (role models) (78%), having opportunities for my academic development (76.4%), answering a calling (76.2%), being a teacher offers good salary (73.5%), having more time for family (70.6%), having only one choice (prioritizing to be a teacher-66.1%), having in teaching activity (60.1%), and having long holidays (53.2%). These findings were strengthened by the data from the interviews with our participants as showed in Table 3, 5, and 7. The findings of this study confirmed that the motives to go into a teacher education program were first altruistic, second intrinsic, and third extrinsic.

What do the results of our study suggest for developing teacher education programs? The findings of this study may potentially provide teacher education providers at departmental and university levels with the kinds of evidence from the motives of our participants entering teacher education programs in order to be a teacher which is mainly “altruistic, intrinsic, and extrinsic”. In the Indonesian context, teacher education providers should focus on magnetizing individuals

who have strong altruistic and intrinsic motives wanting to be a teacher in order to maintain their commitment and passion to build the future of their nation. During the recruitment processes, interviews with potential candidates should be conducted. Also, teacher education providers should trace back potential candidates' social activity records in order to obtain appropriate candidates to be trained in teacher education programs. Moreover, our findings indicated that female science and math participants were more overriding than male ones. While teaching career might be considered a female occupation, in Indonesia because more isolated and countryside areas still demand more educators or teachers, teacher education providers should recruit more male student teachers to go into teacher education programs.

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