

## Psychological Barriers to Self-Understanding of Student Teachers

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### Abstract

The primary purpose of this study was to investigate psychological barriers to self-understanding of student teachers. Quantitative approach was used in this study. A total of 700 student teachers from Yangon University of Education and Sagaing University of Education were involved in this research. The Chemistry Attitude Experiences Questionnaire (CAEQ), developed by Coll et al., was modified into Myanmar version and used to measure attitude towards Chemistry, Chemistry self-efficacy and Chemistry learning experiences of student teachers. Psychological barriers of teaching Chemistry questionnaire for student teachers was constructed. Data analysis included multiple regression, Pearson product moment correlation, independent sample t-test and descriptive statistics. Findings provided evidence that the strongest effect on attitude towards Chemistry, Chemistry self-efficacy appears due to lack of confidence. Anxiety is the second strongest effect on self-efficacy. The results from correlational analyses showed that lack of confidence and anxiety are negatively correlated with attitude towards Chemistry, Chemistry self-efficacy and Chemistry learning experiences at ( $p < 0.05$ ,  $p < 0.01$ ) level. Independent sample t-test results revealed that female student teachers are higher than that of male student teachers in psychological barriers and learning experiences. Male student teachers are higher than that of female student teachers in chemistry self-efficacy. Student teachers from Yangon University of Education are more than student teachers from Sagaing University of Education in psychological barriers, attitude towards Chemistry, Chemistry self-efficacy and Chemistry learning experiences.

**Keywords:** Psychological Barriers, Self-Understanding, Student Teacher, Attitude, Self-efficacy, Learning Experience, Chemistry Learning Experience

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## **Introduction**

Self-understanding is interesting and stimulating approach to guidance. It provides a dynamic center around which to group the factors relating to future life activities and especially to the choice of life work. This is in essence the modern version of the Greek motto "Know thyself", and like this motto it looks to the future and seeks to find the types of activity which will be harmony with the self-concept. It involves bringing together into consciousness the characteristics, abilities, aptitudes, potentialities, and ideas of the individual and organizes them in such a way as to point to the kinds of activity personal, social, occupational which will enable him to meet his basic needs and to secure personal satisfaction.

Psychological barriers are internal beliefs that cause a person to feel he cannot complete a task. There are many psychological barriers for teaching and learning- difficulty of material, high anxiety, low motivation, disinterest, helplessness, frustration and ineffective teaching approaches etc. These can be considered as some barriers in teachers and learners. To overcome such barriers, teachers must know about themselves and they should understand their difficulties. As a teacher, if he/she has some kinds of barriers, he/she will get in trouble in his/her teaching and learning situation. And also as a student teacher, if he/she faces barriers, he/she cannot achieve in his/her learning or he/she cannot use his/her real abilities. The students' understanding of the concept is crucial to successful teaching and learning. Chemistry teachers are very important to provide students' understanding of the Chemistry concepts. Chemistry is a difficult subject to teach and to learn at both secondary and tertiary levels. There may be a lot of psychological barriers in student teachers in Chemistry subject for preparing to teach in actual classroom. These psychological barriers can affect their attitude, self-efficacy and learning experiences at present. Therefore, student teachers also must realize their psychological barriers in chemistry learning themselves to help their students when they become teachers.

### **Purpose of the study**

The purpose of this study is to investigate psychological barriers to self-understanding of student teachers.

## Scope and procedure

In this study, the Chemistry Attitude and Experience Questionnaire developed by Coll et al. (2002) was used to gauge student teachers' learning experiences, attitude towards Chemistry, and Chemistry self-efficacy. Psychological barriers of student teachers questionnaire was constructed. Chemistry Attitude Experience Questionnaire (CAEQ) and psychological barriers questionnaire were revised and checked by eight educational experts. Then, a pilot testing was conducted with a sample of forty-eight fourth year, first semester student teachers who are specialized in teaching of Chemistry from Yangon University of Education. According to the result of pilot testing, the two questionnaires were modified. Then, third year and fourth year student teachers from Yangon University of Education and Sagaing University of Education who are specialized in teaching of chemistry were selected as the sample. Next, data were collected using CAEQ instrument and psychological barriers of student teachers questionnaire. Another step was done by entering collected data into a computer data file. After that, these data were analyzed using the Statistical Package for the Social Science (SPSS) software version 20.

## Definitions of the key terms

**Psychological barriers.** Psychological barriers are internal beliefs that cause a person to feel he cannot complete a task. (psychology dictionary.com, 2014)

**Self-Understanding.** Self-understanding refers to a person attains the insight into his/her attitudes, motives, defences, reactions, weaknesses and strengths. It is also called self-awareness. (2knowmyself.com, 2014)

**Student teacher.** A student teacher or practice teacher is a college, university or graduate student who is teaching under the supervision of a certified teacher in order to qualified for a degree in education. (Wikipedia.org, 2014)

**Student teacher.** A student teacher is a student who is studying to be a teacher. (dictionary reference.com, 2014)

**Attitude.** Attitude is 'mental and neutral state of readiness, organized through experience, exerting a directive and dynamic influence upon the

individuals' response to all objects and situations with which it is related.' (Horowitz & Bordens, 1995)

**Self-efficacy.** Self-efficacy refers to a person's belief in his\ her ability to organize and execute a required course of action to achieve a desired result. (Bandura, 1997)

**Learning experience.** Learning experience refers to any interaction, course, program, or other experience in which learning takes place, whether it occurs in traditional academic settings (schools, classrooms) or nontraditional settings (outside-of-school locations, outdoor environments), or whether it includes traditional educational interactions (students learning from teachers and professors) or nontraditional interactions (students learning through games and interactive software applications). (edglossary.org, 2015)

**Chemistry learning experience.** Chemistry learning experiences have been considered to be any experience resulting in a belief formation about chemistry (where that belief is attitudinal, knowledge or skill based). (Coll et al., 2002)

### **Review of Related Literature**

Understanding cannot come merely from observation of what a person does, how he/she acts and how he/she seems to feel. It is important to know the influences that were responsible for his behavior, "how he/she got that way," what his/her purpose was in doing what he did. Many times he/she himself/herself does not understand why he/she acted as he/she did. People who have learning difficulties may have a bad self-understanding because often they are unable to understand what is going on around them, thus making it hard for them to understand who they are as a person and what they can accomplish. Especially if they were raised in isolation where aren't any other people with learning difficulties they would find it hard to grasp why they are different than the people they spent their daily lives with, though if they were raised with people who have similar learning difficulties they would have a better self-understanding because they would know that they are not alone.

According to Damon and Hart (1988), self-understanding is the child's cognitive representation of self, the substance and content of the children's self-conceptions. According to Broughton (1978), the

rudimentary beginning of self-understanding begins with self-recognition, which takes place by approximately eighteen months of age. Since children can verbally communicate their ideas, research on self-understanding in childhood is not limited to visual self-recognition, as it was during infancy. Self-concept is made up of one's self-schemas, and interacts with self-esteem, self-knowledge, and the social self to form the self as whole. It includes the past, present, and future selves, where future selves (or possible selves) represent individuals' ideas of what they might become, what they would like to become, or what they are afraid of becoming. Possible selves may function as incentives for certain behavior (Myers, 2009 & Markus; Nurius, 1986). Self-efficacy is a belief about what one is capable of learning or doing: it is not the same as skill or ability. In gauging self-efficacy, individuals assess their skills and capabilities to translate those skills into actions. There are other variables that bear some similarity to self-efficacy. Self-concept refers to one's collective self-perceptions formed through experiences with and interpretations of the environment and influenced by reinforcements and evaluations by others (Bandura, 1997). Attitude is 'a mental and neutral state of readiness, organized through experience, exerting the directive and dynamic influence upon the individuals' response to all objects and situations with which it is related' (Horowitz & Bordens, 1995). Bandura (1986) defined self-efficacy as 'people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performance'.

According to Muellerleile (2005), attitude is a hypothetical construct that indicates an individual like and dislike towards an item. It may be positive, negative or neutral. Attitude is an approach, temperament, sensation, situation, etc. with regard to a person or thing: inclination or course, especially of the mind. Attitude is a way of looking at things. The important outcomes of secondary school science education are attitude like academic achievement. According to Pickering, 1980; Hofstein and Lunetta, 1982; Garnet et al., 1995; Lunetta, 1998; Tobin, 1990; Hofstein and Lunetta, 2004, to make the learning process of the students more lasting and meaningful, it is important to expose them to different experiences in learning environments. Thus, students reach new information by researching and discovering with the help of the related information they acquired in advance.

A psychological barrier is a limiting belief that prevents a person from reaching his/her potential. This means that a person could be able of

succeeding or doing a certain thing but because of his/her psychological barrier he remains trapped where he/she is and does nothing (Radwan, 2011). Overcoming psychological barriers involves a realistic, informed perspective of the situation and persistent attempts to break down the barrier through thought and actions. A meaningful self-understanding of the individual is not always easy to secure. Certain psychological barriers may impede individuals' progress toward such understanding.

According to Ohman's (2000) definition, presents anxiety in terms of three components: (a) a subjective experience consisting of an "ineffable and unpleasant feeling of foreboding" (b) perception of bodily responses (e.g. sweating, palpitations, shortness of breath and (c) behaviors associated with escape and avoidance. Lack of self-confidence and/or low self-esteem is not directly defined in the Buddhist tradition, but it would certainly be classified as a negative emotion or delusion, as it exaggerates one's limitations in capacity, quality and potential for growth. Briefly put, every sentient being has the potential to become a fully perfected Buddha, if one does not understand this, one is deluded in this respect. Lack of self-confidence can be made up of several different aspects like: guilt, anger turned inward, unrealistic expectations of perfection, false sense of humility, fear of change or making mistakes, depression etc. Depression can actually also be a result of a lack of self-confidence (Hunter, 2014). Chemistry is a difficult subject to teach and to learn at both secondary and tertiary levels. Major learning difficulties are due to the particular views of Chemistry phenomena that in many ways contradict intuitive and everyday views of the learners. Chemistry is challenging and takes persistence at the secondary level, and even more so at the postsecondary level. Students with a high self-efficacy toward chemistry will be more likely to take on the challenge of Chemistry and persist through the courses. (Cook, 2013).

### **Method and Procedure**

A survey method was used in this study with quantitative perspective.

### **Participants**

In this study, B Ed students: third year and fourth year students who specialized with teaching of Chemistry were selected. A sample of 700

students (350 from Yangon University of Education and 350 from Sagaing University of Education) was selected.

### **Instruments**

The Chemistry Attitude and Experience Questionnaire (CAEQ) developed by Coll et al., (2002) was modified into Myanmar version and used. The Chemistry Attitude Experience Questionnaire (CAEQ) was used to investigate self-understanding of student teachers in chemistry learning. The final version of the CAEQ consists of three scales, each containing a number of subscales. The attitude towards Chemistry scale contained a total of 22 items, across five subscales: attitude toward chemists (9 items), skill of Chemists (4 items), attitude toward Chemistry in society (2 items), career interest in Chemistry (5 items), and leisure interest in Chemistry (2 items). The Chemistry self- efficacy scale, contained 20 items, consists of one scale with student-teachers not appearing to have different efficacious beliefs for the different tasks in Chemistry (Dalgety, Coll, & Jones, 2001). The Chemistry learning experiences scale, consisting of 35 items, has four subscales: lecture learning experiences (10 items), tutorial learning experiences (10 items), laboratory learning experiences (10 items), and demonstrator learning experiences (relating to graduate assistants who supervise practical classes) (5 items). Each item in the CAEQ instrument to measure student teachers' attitudes towards Chemistry was responded to on a 7-point semantic differential scale whereas items to measure students' self-efficacy were responded to on a 5-point semantic differential scale: 'Totally Confident'(5) to 'Not Confident' (1). Then each item to measure student teachers' perceptions of their Chemistry learning experiences at tertiary level was responded to on a 5-point Likert scale: 'Strongly agree' (5), 'Agree' (4), 'Neutral' (3), 'Disagree' (2), and 'Strongly Disagree' (1). The Cronbach alpha reliability of the CAEQ was found to be at a high level of 0.95. Each scale in the CAEQ was found to display satisfactory internal consistency reliability. On the other hand, psychological barriers of student teachers questionnaire was constructed with 25 items and consisted of two subscales: anxiety (9 items), and lack of confidence (16 items). It is a Likert scale ranging from 'Strongly agree' (5), 'Agree' (4), 'Neutral' (3), 'Disagree' (2), and 'Strongly Disagree' (1). The reliability coefficient of Cronbach alpha was 0.77.

### **Findings**

This study was analyzed quantitatively using statistical method. After developing the instruments of Chemistry Attitude and Experience Questionnaire and Psychological Barriers Questionnaire, the student teachers' Chemistry attitudes, Chemistry self-efficacy and learning experiences for self-understanding in Chemistry learning and psychological barriers were examined.

**Table 1. Descriptive statistics of student teachers' psychological barriers of all samples**

<b>Variables</b>	<b>M</b>	<b>SD</b>	<b>M %</b>
Lack of confidence	41.67	8.27	52.09
Anxiety	30.19	5.72	67.09
Total	71.87	12.89	57.49

Note: M = Mean, M % = Percentage of Mean, SD = Standard Deviation

Since the number of items included in each subscale of psychological barriers questionnaire were not the same, the mean scores were transferred to the corresponding mean percentages. Based on the descriptive statistics shown in table 1, mean percentage for anxiety is higher than lack of confidence for student teachers. It can be said that anxiety barrier can affect student teachers in chemistry subject learning.

**Table 2. Result of independent sample t-test on psychological barriers by gender**

<b>Variables</b>	<b>t</b>	<b>df</b>	<b>p</b>	<b>MD</b>
Lack of confidence	-2.49*	698	.013	-1.99
Anxiety	-1.84	698	.066	-1.81
Total	-2.42*	698	.016	-1.93

Note: \* $p < 0.05$

The results of independent sample t-test indicated that there were significant differences in lack of confidence at 0.05 level and total at 0.05



level. Therefore, male student teachers are more confident than female student teachers in teaching of Chemistry. In total, psychological barriers of male student teachers are lower than that of female student teachers.

**Table 3. Result of independent sample t-test on psychological barriers by university**

<b>Variables</b>	<b>t</b>	<b>df</b>	<b>p</b>	<b>MD</b>
Lack of confidence	4.46***	698	.000	3.44
Anxiety	2.45**	698	.014	2.35
Total	3.95***	698	.000	3.05

Note: \*\* $p < 0.01$ , \*\*\* $p < 0.001$

The results of independent sample t-test indicated that there were significant differences in lack of confidence and in total psychological barriers at 0.001 level and in anxiety at 0.01 level. Therefore, lack of confidence of student teachers from Yangon University of Education is higher than that of student teachers from Sagaing University of Education and anxiety of student teachers from Yangon University of Education is higher than that of student teachers from Sagaing University of Education. And also total psychological barriers of student teachers from Yangon University of Education were higher than that of student teachers from Sagaing University of Education.

**Table 4. Descriptive statistics of student teachers' self-understanding in chemistry of all samples**

<b>Subscales</b>	<b>Mean</b>	<b>SD</b>	<b>M %</b>
Attitude	134.58	87.38	87.38
Self-Efficacy	44.19	15.50	86.01
Learning experience	137.66	17.38	90.39

**Table 5. The results of independent sample t-test for student teachers' self-understanding in chemistry by gender**

<b>Variable</b>	<b>t</b>	<b>p</b>	<b>MD</b>
Attitude	4.05***	0.000	2.87
Self Efficacy	1.97	0.049	2.38
Learning Experience	-4.93***	0.000	-3.73

Note: \*\*\* $p < 0.001$

The results of independent sample t-test indicated that there was significant difference in student teachers' attitude and learning experience at 0.001 level and another variable was no significant difference. Chemistry learning experiences of female student teachers were higher than that of male student teachers.

**Table 6. The results of independent sample t-test for student teachers' self-understanding in chemistry by university**

<b>Variable</b>	<b>t</b>	<b>p</b>	<b>MD</b>
Attitude	1.74	0.082	1.21
Self Efficacy	8.23***	0.000	9.29
Learning Experience	-1.07	-0.285	-0.80

Note: \*\*\* $p < 0.001$

The results of independent sample t-test indicated that there was significant difference in student teachers' self-efficacy at 0.001 level and other variables were not significant difference. Chemistry learning experiences of student teachers from Sagaing University of Education were higher than that of student teachers from Yangon University of Education.

**Table 7. Correlation for psychological barriers and self-understanding**

Variables	PLC	PA	CA	CSE	CLE
PLC	1	.365	-.120**	-.196**	-.083*
PA		1	.052	-.114**	-.084*
CA			1	.129**	.106**
CSE				1	.065
CLE					1

\* Correlation is significant at the 0.05 level (2-tailed).

\*\*Correlation is significant at the 0.01 level (2-tailed).

Note: PLC= Lack of confidence, PA= Anxiety, CA= Attitude towards chemistry, CSE=Chemistry Self-Efficacy, CLE= Chemistry learning experiences

Lack of confidence is negatively correlated with attitude towards Chemistry, Chemistry self-efficacy and Chemistry learning experience. Anxiety is also negatively correlated with Chemistry self-efficacy and Chemistry learning experiences. Attitude towards Chemistry is strongly correlated with Chemistry self-efficacy and Chemistry learning experiences.

### Conclusion

The primary purpose of this study is to investigate psychological barriers to self-understanding of student teachers. Chemistry Attitude and Experience Questionnaire (CAEQ) and psychological barriers questionnaire were revised and checked by eight educational experts. Then, a pilot testing was conducted with a sample of forty-eight skills of chemists by University. Student teachers from Yangon University of Education are higher than student teachers from Sagaing University of Education in attitude towards Chemistry. There is significant difference in student teachers' self-efficacy by University. Student teachers from Yangon University of Education are higher than student teachers from Sagaing University of Education in Chemistry Self-efficacy. Student teachers from both Universities of Education may have the same abilities and teaching-learning situations. Yangon is Myanmar's largest and most commercially important city, so student teachers from Yangon University of Education have opportunities to

get a variety of things to do teaching aids and some projects for science teaching and learning. So, their beliefs are high in their abilities to execute a required course of action to achieve the desired results. Chemistry learning experiences of student teachers from Sagaing University of Education are higher than that of student teachers from Yangon University of Education.

Student teachers who were high in lack of confidence and anxiety can reduce in their abilities to understand themselves because these factors can affect strongly on their attitude, self-efficacy and also a little on learning experiences. , self-understanding is not very difficult to achieve if done in a proper and systematic manner. A person can use some tips for developing a level of self-understanding easily: Firstly, ask questions- Who knows the best? Who knows each and every thought? Who knows the feelings exactly? No one else but he knows himself. This is why, individuals must question themselves- Who am I? What are my likes? What are my dislikes? Through questioning and prompting, they can develop themselves understanding and then use it to motivate themselves very easily.

Secondly, a person should observe himself and his activities daily and regularly. What are some of the things that enjoy doing every day? What are some of the things that want to do again and again? Identify such activities through observation and keep them in mind.

Finally, to get anywhere near self-understanding, the individual needs to spend sometimes alone. It should be made a habit to spend some time at least once a week. And tried to find a peaceful and quiet place and just sit there. He/she should reflect on what have done till now. Through self-understanding, every individual can easily achieve the level of motivation he/she wants at any time he/she likes. And once they have self-motivation, there is nothing stopping them from achieving success.

### **Limitation of the Study**

The proportion of male and female participants involved in this study was not equal because of the very low percentage of male student teachers who enrolled in both universities. To examine gender related difference, equal sample was desirable. In addition, in order to confirm the measurement of self-understanding, other variables should be considered in questionnaire including self-concept, self-awareness, and so on. In this

study, student teachers who were specialized in chemistry subject are selected as sample, so this study cannot be represented student teachers who specialized in other subjects. Moreover, self-understanding was one of the difficult psychological attributes to measure and better instrument cannot be developed during a short period of time. For this reason, cross-sequential design was more desirable for this study. Due to scarcity of time, and relevant resources, such kind of design was impossible for this study.

### Suggestions for Future Research

There is no doubt to take additional research on psychological barriers of student teachers for all specializations and especially for teaching practice. In the future, more researchers are needed to apply more relevant instrument for self-understanding if possible. Qualitative research is good research method to investigate deeply about the feeling and experience of student teachers. It can be used in the further studies. The participants in this study are only from third year and fourth year. Further studies can investigate all classes and to have comparison between different classes. To be concluded, it is hoped that the findings presented in this study will provide some insight in the study of psychological.

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