

A STUDY ON
“ENACTIVE MASTERY EXPERIENCE AND CONTROLLING PHYSIOLOGICAL
& EMOTIONAL STATES OF FARMERS”

A dissertation submitted as a part of the internship program on

Agricultural Psychology

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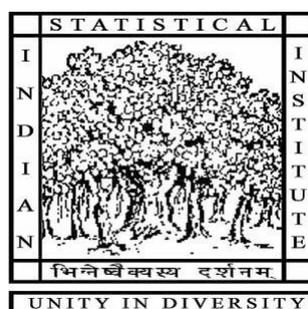
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ABSTRACT

Agriculture is the art and science of cultivating crops. With over 70% population of the country depending on agriculture as a source of income, it is rightly said to be the backbone of our economy. The concept of self-belief was given by Bandura, that can be defined as an individual's belief in their ability to exercise control on their functioning and succeed in a given situation. Farmer's self-efficacy can be defined as a farmer's belief on his capacity to organize and execute an action plan in order to reach and attain their agricultural goals and outcomes. Enactive mastery experiences are those which help an individual in organizing their own set of beliefs regarding their role functioning. Controlling physiological and emotional states includes the impact of "emotional arousal" on an individual's ability to complete a task. The present study focused on understanding these two domains of farmer's self-efficacy and its impact on agricultural produce & overall well-being of agricultural farmers. Descriptive and correlational analysis was run on a secondary data (Dutta Roy, 2008). The findings indicate that the participants they are unable to build up on their already existing work such as working for longer hours, using any latest technology or learning any sales tactics to grow their customers. They further showed the need to provide resilience training to our farmers, that can help them deal with any form of uncertainties or losses more efficiently, without causing any form of stress. A holistic, all-inclusive system needs to be developed as a part of agricultural reforms, that focuses on bridging the gap between rural-urban population and the perceived attitude towards the profession of agriculture.

Keywords: Self-efficacy, farmers, agriculture, enactive mastery experience, physiological & emotional states

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CHAPTER: 1

INTRODUCTION

1.1 Agriculture in India

Agriculture is the science and art of cultivating crops, along with livestock for economic causes and benefits. It is simply the act of growing and raising a plant from seeds till the final produce, and use them for different purposes. It is one of the greatest livelihood providers in the country, especially in our vastly spread rural areas. Agriculture can be called the backbone of Indian Economy and also has a significant contribution to the Gross Domestic Produce (GDP) of the country.

The agricultural sector is one of the most important industries in the Indian economy, thereby also making it a huge employer. Agriculture and farming are the primary source of employment and livelihood for about 58% of India's population. According to the Economic Survey 2020-2021, the share of agriculture in our GDP has reached 19.9%, from 17.8% in 2019-2020 (Economic Survey 2021, Government of India). Such figures were previously seen during the Economic Survey of the year 2003-2004. It was the same year where along with GDP, the Gross Value Added (GVA) of the entire economy shrunk by 7.2%. But the GVA for agriculture retained a positive growth of 3.4% (IBEF, 2017). This indicates that there is a paradigm shift of the viewpoint on agriculture, from solely being a rural livelihood sector, to now a flourishing modern business enterprise.

The history of agriculture in India dates back to the Indus Valley civilization era. The domestication of plant and animals in the Indian subcontinent are reported by 9000 BC. This included crops such as wheat, barley and jujube and animals such as goats and sheep that were cultivated. The Neolithic period, which can be dated around 8000-5000 BC has reports of agro-pastoralism, and it included threshing and planting crops in rows. Cotton was reported to be cultivated in Kashmir by 5000-4000 BC. The farmers of the Indus Valley Civilization cultivated rice, peas, sesame and even dates. They also developed the irrigation system around 4500 BC which resulted in the size and prosperity of the Indus civilization. References of cultivating a variety of cereals, vegetables and fruits along with the consumption of milk products and meat are seen in the Vedic texts (1000-500 BC). The ancient agriculture of South India has been emphasized, where the Tamil people grew diverse crops such as rice, sugarcane, millets, black peppers, coconuts, cotton, tamarind, sandalwood etc.

The ongoing COVID-19 pandemic had a significant impact on the economy of the country as a result of the lockdown impositions and substantial changes in various occupational sectors. This impacted the farming activities where moving farm machinery from one location to another was difficult. The migration of laborers all across the country, including the agricultural laborers resulted in their shortage and scarcity where needed. Even in the face of such adversities, the resilience shown by the agricultural and farming community has resulted in a positive growth of 3.4% at constant prices in the agriculture sector, while all the other sectors saw severe declines and incurred huge losses (IBEF, 2017). There was a continuous supply of agricultural commodities, such as wheat, rice, pulses and vegetables, which also further ensured food security of the nation.

1.2 Agricultural Psychology

Agriculture is essential and fundamental to mankind. It consists of the primary source of produce, all the way to the consumers of the same and includes the hard work of millions of farmers in different occupations and sectors. Having a sustainable food and fibre production is crucial to the human population. The field of psychology can assist in developing and forming sustainable agriculture by means of research and development along with skills training or practices that have an impact on the enticement, retention and participation of farmers and agricultural laborers.

Historically, psychology isn't known for its interest in rural issues, as compared to other social sciences who developed application-based interest in agriculture along with specialized sub-disciplines (Shanteau, 2001). This is further demonstrated by a lack of psychological equivalents of specialties like agricultural economics, rural sociology, rural geography or agricultural marketing (Shanteau, 2001). Nevertheless, interaction between agricultural issues and psychological perspectives has occurred on various domains. A few of these domains are: assessing the therapeutic needs of rural population, investigating the farming skills and farming tasks, or analyzing and evaluating the decisions made by farm management. It is often believed that living life in a rural setting is easier than that in an urban setup, but they have their own set of challenges and hardships which can cause them mental health related issues. With an increase in the usage of computers and machines in all the fields, agriculture sector too is making advances in the same. But as a vast number of farmers are used to the traditional methods and relying more on physical strength and manual tasks, there is a need to shift from such generalized skills to more specific and technical skills.

The application of psychology includes a vast area in studying human behaviour. As a result, psychology is a part of agricultural extension. It can be defined as a multi-disciplinary subject aiming to improve and enhance the well-being of farmers along with their agricultural practices in the rural areas. It includes a thorough understanding of the complex social structures, as well as the culture and value system of the rural life. This approach comprises of an amalgamation of sociology and educational psychology with agriculture. The objective is to update and educate the farmers regarding the latest developments in the field of psychology and use this knowledge/technology in the most efficient manner.

1.3 Enactive Mastery Experience

Psychologist Albert Bandura first coined the term “self-efficacy” (1977) and proposed this concept as “an individual’s set of beliefs that determine how well can one execute a plan or course of action in a given situation” (Bandura, 1977). It can be simply defined as the belief a person has in their ability to exercise control on their functioning and succeed in a particular situation. Bandura (1977) theorized that people’s belief in their efficacy are developed by four main sources of influence, which are: (i) mastery experiences, (ii) vicarious experiences, (iii) social persuasion, and (iv) emotional and physiological states.

Self-Efficacy Theory of Bandura follows the principle that people are likely to engage in activities to the extent that they perceive themselves to be competent at those activities. As self-efficacy is the belief in one’s effectiveness in performing specific tasks this theory of self-efficacy has important implications for how people think, feel, motivate themselves and behave. In the order of strength; people who consider themselves to have highly efficacious act, think, and feel differently from those who perceive themselves as inefficacious. They create their own future, rather than waiting for it to uncover or simply foretell it. This also enhances one’s accomplishments and personal well-being in many ways.

Enactive mastery experiences, which are also known as “performance accomplishments”, are the psychological states that helps an individual to organise their own set of beliefs regarding various sources. It is the most salient feature out of the four, as it acts as a source of providing the individual with an immediate and a considerable amount of feedback. This source of influence also leads to developing specific set of beliefs pertaining to successes, failures, setbacks or overall performance. It also views the relevance and significance of goals, selective self-monitoring, and identifies that everyone

has their own background, self-concepts, knowledge, and personality with regards to the experience (Bandura, 1994).

The most effective and efficient way in which we can create a strong sense of efficacy is through mastery experiences. Being successful reinforces a stronger belief in one's personal efficacy, whereas failures have the tendency to undermine it. Building a resilient sense of self-efficacy needs for an individual to overcome obstacle by giving persistent efforts. When an individual experiences only easy successes, they expect quick results and often feel easily discouraged by failures or setbacks. Once they are convinced that they have what it takes to overcome whatever obstacle comes their way and succeed, even in the face of adversity, they persevere and are able to recover from setbacks faster than usual. It can thus be said that enactive mastery consists of creating a situation for yourself where even experiencing a "small win" ends up acting as a catalyst for further performance and advancement.

Prior research in the field further establishes and demonstrates the importance of mastery experiences in order to function optimally. Babysitting is a strong predictor of a mother's belief in her ability to take care of her baby. Women who have prior experience of taking care of infants as a babysitter, are more confident about their maternal instincts and abilities (Froman & Owen, 1989).

One of the best and the proven way to acquire a new skill or improve the already existing skills and performance is by practising. Enactive mastery experiences play a role in it, where the belief that they are capable of acquiring a new skill. This positive way of thinking acts as a blessing, as a part of the struggle of learning something new or getting better at anything ensures that the individual believes in their ability and capacity to carrying out a said task successfully (Bandura,1994). Various internships, training programs, workshops and in-person experience are offered to create more opportunities for individuals to become more efficient at their work and thereby increase their self-efficacy. For example, people with disabilities who are wanting to enter the market are providing mastery experience through the mode of training programs (Strauser, 1995). The internships provided to prospective medical students, clinical training provided to psychologists, field work done by social workers, it all adds up to master one's competencies needed for professional practice.

1.4 Enactive Mastery Experience of Farmers

With agriculture being the backbone of our country, and having about 70% population depend on agriculture for their needs, it becomes important for the farmers to have enactive

mastery experience. A stronger sense of self-efficacy would help strengthen their beliefs in their ability to play the role of an agricultural farmer.

A study was conducted focusing on the training needs of the farmers and rural youth population of Manipur state. The training programmes are conducted by the Krishi Vigyan Kendras (KVKs) which begins with the identification of the training needs. This study by Sajeev et. al. (2017) was conducted in collaboration with the Zonal Project Directorate (Zone III) under Indian Council of Agricultural research (ICAR) and KVS in Manipur state. A list of 11 components/ thematic areas was created, specific and relevant training need items were collected and systematically incorporated in to the interview schedule and administered. The results of the study showed that there was inadequacy in even the most popular areas of training. Farmers sought maximum trainings on integrated farming systems, integrated pest and disease management and technologies for soil and water conservation. These findings implicate that the KVKs have to re-orient their training programs in order to reduce the existing technological and adoption gap among the farmers in Manipur.

A higher sense of enactive mastery in farmers can ensure that they believe they can develop the control they have on their farming activities. It is also indicative of a clear understanding of their role, thereby reducing the probable role conflict and role stress. Dr. Udai Pareek is considered to be a pioneer in the field of Organizational Role Stress, and he developed a framework consisting of ten different stressors which can better explain an individual's perception of Organizational Role Stress. These 10 role stressors are as follows: inter-role distance, role stagnation, role expectation conflict, role erosion, role overload, role isolation, personal inadequacy, self-role distance, role ambiguity and resource inadequacy (Pareek, 1983 as cited in Ratna et al, 2013).

When farmers have a strong control on their farming activities, the role stress/conflict would not arise. Although there are many other factors that can contribute to role stress/conflict in the agricultural setup. An Assam-based study was done by Bortamuly (2015) to understand the role performance of the agricultural extension personnel in the revitalised extension system. The objective of this study was to initiate reforms in the current public sector extension system in order to meet the farmer's technological requirements. The findings of this study revealed that a big portion of personnel working in the extension system had medium level of service experience and training exposure to cope with the everchanging agricultural scenarios and was influenced by a number of factors. These factors included role awareness, role perception, service experience, training

exposure, attitude towards ATMA, achievement motivation, motivational climate, job satisfaction, job anxiety and role conflict. This study marked the first step to improve the present situation, by ensuring that the extension personnel are aware of their roles, perceive their own actions and roles appropriately, and are free from anxiety or conflict while performing their roles.

1.5 Controlling Physiological and Emotional States

An individual's physiological and emotional states have a direct effect on their capabilities of performing a task. The emotional, physical as well as psychological well-being of an individual at a given time, while performing a given task, can have a significant influence on how they feel about their personal abilities in the presenting situation. Bandura (1977) stated that it was not just the sheer intensity of the emotional and physical reactions that was important, but even its perception and interpretation by the individual that played a huge role. Individuals having a high sense of self-efficacy are prone to view this state of affective arousal as an enabler and an energizing facilitator for their performance, while those who are concerned and beset with self-doubt consider this same arousal as debilitating and exhausting.

Self-efficacy of an individual can be influenced by their physiological and emotional states, which can also be termed as "emotional arousal". When an individual's emotional state consists of stress or tension, and these reactions are perceived as signs of weakness or vulnerability, it can lead to poor performance. Individuals often view fatigue, muscle ache or body pain as a sign of frailty or physical incapacity, especially when needed to perform an activity that is highly dependent on physical strength and stamina. Similarly, feeling discouraged, agitated or unwilling can lead to getting distracted and thereby reduce the chances of succeeding in any endeavour. Feeling negative emotions like stress, anxiety, worry or fear can result in a self-fulfilling prophecy of failure or even makes one unable to perform those feared tasks (Pajares, 2002). Such stressful situations can have an impact on the individual's perceived self-efficacy for coping with the situation, as a result of emotional arousal (Bandura & Adams, 1977).

Studies have shown that individuals who newly join the gym have the tendency to believe that everyone else there is watching them, and this perception in turn results in feeling anxious about their workout session. This negative physiological state has an adverse effect on the self-efficacy of an individual, which can lead to discontinuation of their workout. The experts at the gym can use relaxation techniques along with positive

self-talk with such individuals in order to reduce the anxiety and provide support to their self-efficacy (Jackson, 2010).

Affective state of a person can also have a significant impact on one's judgement of their self-efficacy. Positive mood enhances the perception of one's self-efficacy, while having a despondent mood can reduce it. Reducing the stress reaction of an individual and bringing changes in the negative emotional predispositions can act as the way to modify the self-beliefs of efficacy. One can also attempt to emphasize on the novelty of any experience, staying hopeful and optimistic, even use humour at times, and recalling the successful events from the past to strengthen their beliefs of self-efficacy.

1.6 Controlling Physiological & Emotional States of Farmers

India is a developing country, which indicates that there are advancements and inventions occurring in every field. As a result, the field of agriculture would not stay behind, and major reforms would be occurring in the same. Although a significant portion of our country's population depends on agriculture as the source of their income, due to lack of availability of resources, it might be difficult for the farmers to keep up with the ever-changing trends. This can act as a source of stress and anxiety for the farmers, thereby having a significant impact on the physical as well as psychological health of the farmers.

A study conducted by Merriott (2016) aimed at understanding the factors that are contributing to the farmers suicide in India. It was stated that an estimate of 16,000 farmers die as a result of suicide every year, which is a significantly higher rate as compared to that of the general population. The findings from his study indicated that a major contributing factor for this was indebtedness, which falls under the socioeconomic domain, rather than mental health related issues. The agrarian crisis is impacting all the vulnerable farmers. The factors included under this crisis are the lack of agricultural investment and irrigation improvement, use of cash crops, increased use of non-institutional credit sources, and the reduction of trade barriers.

The case of farmer suicide in India, along with the available government figures, is a cause of concern, and can be predictive of an impending epidemic (Das, 2009). Physical, as well as mental health and illness are the result of a complex interplay between the biological, social, psychological, economic, environmental and political factors (Das, 2009). The agrarian crisis, as mentioned in the previous study, is the leading cause behind the present state of the farmers of the country. It is important to develop mechanisms that would help in understanding and implementing various measures of the epidemiology and

public mental health and are reflected in the attempts done for health promotion and prevention.

1.7 Objectives

The present study consists of three main objectives, which are as follows:

1. The purpose of the study is to understand the domains of Farmer's self-efficacy through review of literature
2. The purpose of the study is to examine enactive mastery experience of agricultural farmers.
3. The purpose of the study is to examine the control of physiological and emotional states of agricultural farmers.

CHAPTER: 2

REVIEW OF LITERATURE

Self-efficacy is the concept given by Albert Bandura, which is defined as the set of beliefs held by an individual in their ability to exercise control on their functioning and succeed. Farmer's self-efficacy can be defined as their capability to organize and execute actions which are necessary in order to accomplish the desired performance and outcomes in the agricultural sector.

The concept of Farmer's self-efficacy is further defined by breaking it into five domains, namely: Monitoring environmental uncertainty, Enactive mastery experience, Self-regulation, Vicarious experience and Controlling physiological and emotional states (Dutta Roy, D., 2008). These domains are based on the concept of self-efficacy as given by Bandura, which stated four sources or factors that influence the self-efficacy beliefs of an individual. The present study focuses on the following two domains from the Farmer's self-efficacy: Enactive Mastery Experience and Controlling Physiological & Emotional States.

2.1 Enactive Mastery Experience

Enactive mastery experiences play a significant role in strengthening an individual's self-efficacy beliefs, and has a direct impact on their performance. Bautista (2011) conducted a study to investigate the impact of teacher's self-efficacy beliefs on student's learning. The study stated that mastery experiences encompass the "enactive, cognitive content and cognitive pedagogical mastery experiences" (Bautista, 2011).

Bandura (1977) and his colleagues studied the cognitive processes that mediate behavioral change in an individual. The experiment was designed to test the hypothesis that psychological procedures can lead to changes in the behaviour, by altering the levels of self-efficacy in an individual. The subject group consisted of 33 adults who had chronic snake phobia, who were divided into three groups and given treatment based on performance mastery experiences, vicarious experiences and a control group receiving no treatment. The results confirmed the hypothesized relationship between self-efficacy and behavioural changes.

A study was conducted by Beatson et al (2018) to understand the impact of enactive mastery feedback on the self-efficacy beliefs of undergraduate students. It examined the relationship between the self-efficacy beliefs of undergrad accountancy students and their mid-term exam results. These students had to enroll in a mandatory introductory accounting course

and a survey was conducted regarding their self-efficacy beliefs. The study's analysis indicated a positive relation between the obtained results and the student's sense of self-efficacy at the end of the course. The findings suggest that enactive mastery is demonstrated through various events or activities, such as the student's performance on the examination.

Another study was conducted by Loyo & Cruz (2019) to explore the enactive mastery experiences of seven foreign language teachers, based on their academic trajectory, and its impact on their self-efficacy beliefs. A qualitative, exploratory research design, incorporating in-depth interviews was used in the study. The results stated that perceived self-efficiency of the teachers was on the lower side during the initial years, as a result of lack of real practice. But gradually, with reflection, training and effort, their perceived self-efficacy improved.

With the ongoing pandemic, and a large-scale shift to online classes, individuals who have prior exposure, experiences and practice of using gadgets and online technology had a smoother transition to online classes, as compared to those who did not have these resources available. A study was conducted by Sooyoung Kim (2005) to understand the relation between enactive mastery experience and online courses. The data was analyzed using Pearson's correlation and multiple regression analyses, and the results were found to be significantly and positively related,

Enactive mastery experience can also be described as the belief on the degree to which an individual succeeds in their tasks. It thus acts as a source of motivation, making an individual want to finish and achieve their targets. Biliny (2019) conducted a study to assess the effectiveness of enactive mastery experience group counseling in order to improve the career-making self-efficacy of students. The findings suggested that there was a difference in the levels of effectiveness of in terms of improving career decision making self-efficacy, where the combination of two sources of experience, that is vicarious experience and enactive mastery experience, had the best outcomes.

Practicing is one of the best ways to enhance and improve your skills. The efficiency in conducting the tasks and displaying one's skills can be enhanced by undergoing training programs, attending workshops and webinars and participating in internships. The farmers of the country need to increase participation in such activities, and efforts should be given to increase the frequency of such events so that the farmers are given enough opportunities to upskill.

A study conducted by Girja Sharan (1988) emphasized on training farmers for mechanization. Effective utilization of farm machinery required more than just a transfer of information. New skills need to be built among farmers, especially those who were getting introduced to machinery for the first time. The author divided the process of mechanization into four stages. In the first stage, there is no mechanization. Man acts as the source of power. His hands are his tools. In the second stage, man continues to be the power source but begins to use tools instead of bare hands to perform the operations. This is the beginning of mechanization. The third stage is where animals, and later machinery, replace man as the source of power. Man retains only the logistical functions of guiding and controlling. The fourth stage of mechanization is where even the logistical functions are given over to say, intelligent machines. The significant findings of the study suggested that skill training programs would help individual farmers reduce the cost of repair and operation. It would further create an equipment demand for the industry, by making the farmers more receptive and by enabling them to derive full economic benefits from their equipment. For the nation, training can reduce wasteful use of fuels, and help energy conservation.

Agarwal (2011) studied the vocational education and training (VET) in India, incorporating the challenges and difficulties in the Indian VET system. He also examined the labour market outcomes of vocational graduates and compared them with those of general secondary graduates using a large-scale nationally representative household survey. The findings indicated a high rate of unemployment (11%) for VET holders in the age group 15–29 years. Although the unemployment rate of VET holders was higher than the overall unemployment rate in the same age group, the rate was found to be lower than that for general secondary graduates. It was also seen that average daily wages were reportedly higher, both for regular and casual workers, for VET holders. The study concluded that there has been a considerable increase in the number of Industrial Training Institutes/Centres in the last decades, but the coverage of the system is disparate in terms of institutes vis-à-vis states.

Roy et al (2013) studied the impact of value addition training on participants from the farmers training institute. It focused on exploring the impact of training programs in changing the perceived knowledge, acquisition of skills and adoption level of the participants. The significant findings from this study are as follows: the contributing factors of improving the positive impact of training include the education level of the participants, their post-harvest knowledge and their attitude towards value addition; more feasible strategies are needed to

improve the participant's skills; and several interventions from the state government are required in order to increase the adoption level.

A review of literature was conducted by McElwee (2006) to summarize and derive the main issues from the studies that are published on the subject of farmers' skills and entrepreneurial capacity. Farming is not a homogeneous sector; farmers operate in a tightly constrained and regulated, complex and multi-faceted environment, which acts as a significant barrier to entrepreneurial activity. The literature review analysed the topics that have been a subject matter of the farm entrepreneurship research and suggested that there were some limited trends which emerged from the literature and that a number of key topics were receiving higher levels of attention as compared to others: namely farm diversification and farmers' enterprise skills.

Tripathi & Agarwal (2015) conducted a study that emphasizes on rural development by promoting agripreneurship. The research paper identified and analysed the economic and social perspective which worked as a barrier in the development of entrepreneurial skills in the farming sector of Uttar Pradesh and studied the implications of the Pieter de Wolf and Hermann model. The study concluded that the challenges faced by agripreneurs are as follows: lack of funds, lack of infrastructure, risk, marketing problems & competition and management problems. The management problems were further divided and specified into the following: Lack of technological dissemination, Legal formalities and regulations, Availability of resources, Lack of technical knowledge, Quality Control and Low skill level among farmers.

The field of agriculture might seem to be male-dominated, but females play an equally important role in the same, thereby facilitating an uninterrupted and high-yielding farming. A study was conducted by Lourenco et al (2014) in order to evaluate the success of a scheme that was supported by the Ugandan Agribusiness Initiative Trust, and to fund gender and entrepreneurship training for women farmers in the north of Uganda. A practitioner-based reflection approach was used that includes sharing the experiences of the process of developing and delivering gender and entrepreneurship training for women in Uganda. Through the experience of running gender and entrepreneurship training for women farmers in Uganda, a series of barriers to female rural entrepreneurs were highlighted: lack of access to credit, gender inequality, poor infrastructure, lack of access to knowledge and education, negative attitudes towards women and few initiatives to facilitate economic and business success.

2.2 Controlling Physiological and Emotional State

The self-efficacy of an individual can be determined based on their physiological and emotional states in a given moment. Bandura (1977) stated that it was not just the sheer intensity of the emotional and physical reactions that was important, but even its perception and interpretation by the individual that played a huge role. Individuals having a high sense of self-efficacy are prone to view this state of affective arousal as an enabler and an energizing facilitator for their performance, while those who are concerned and beset with self-doubt consider this same arousal as debilitating and exhausting.

Self-efficacy has a direct relation with the physical as well as mental health of an individual. They act as an external source, that has a significant impact on an intrinsic component, self-efficacy. A study was conducted by Najafi & Foladjang (2007), that was aimed at investigating the relationship between self-efficacy and mental health. Self-efficacy scale by Sharer and the Symptom-Checklist-90-Rivis Scale (SCL-90-R) was used and data was analysed using t-test and correlation. Results revealed that there is a significant relationship between self-efficacy and mental health and low levels of self-efficacy were accompanied by high levels of pathological symptoms. The findings did not suggest a significant difference between self-efficacy and mental health in girls and boys.

Another study was conducted by Moslem Parto (2011) to investigate the direct and indirect effects of problem solving and self-efficacy on mental health in adolescents. Four tools were used in the study: the General Self-efficacy Scale, the Problem Solving Inventory, the Gambrill-Richey Assertion Inventory, and the General Health Questionnaire. Results revealed that self-efficacy and problem solving were the direct and indirect predictors of mental health. Assertiveness was mediated on the relationship between self-efficacy and problem solving with mental health. The findings of this study provided evidence for the mediating mechanisms through which assertiveness mediated the relationships between self-efficacy and problem solving with mental health.

Paxton et al (2010) conducted a study to understand the relationship between physical activity and quality of life, and the indirect or complementary influence of self-efficacy for physical activity and mental health difficulties. Two-multilevel structural models were tested to determine the relationship between physical activity and QoL. In model 1, we observed a positive linear relationship between physical activity and self-efficacy. In turn, self-efficacy was negatively associated with poor mental health difficulties and positively associated with QoL. Mental health difficulties were also negatively associated with QoL. In model 2, physical

activity was positively associated with self-efficacy and negatively associated with mental health difficulties; in turn, self-efficacy was positively associated with QoL, whereas mental health difficulties were negatively associated with QoL. These findings suggested that self-efficacy and mental health have intermediary roles in the relationship between physical activity and QoL.

The psychological states of an individual, along with their immediate environment, can also have a significant impact on their self-efficacy beliefs. Dupéré et al. (2012) studied the impact of neighbourhood on the self-efficacy of adolescents. They hypothesized that Because adolescents' neighbourhoods shape opportunities for experiences of control, predictability, and safety, which are associated with adolescents' self-efficacy and, in turn, their internalizing problems (i.e., depression/anxiety symptoms). Results indicates that the adolescents who lived in violent neighbourhoods tended to report lower self-efficacy beliefs, partly because they were more likely to experience fear in their neighbourhood. However, moving out of that neighbourhood, into the outskirts or other regions of the city was associated with adolescents increased self-efficacy Finally, through self-efficacy, these neighbourhood processes had an indirect association with adolescents' internalizing problems. The obtained results partially supported a model linking neighbourhood conditions, cognitions about the self, and emotions.

Recently, concern has increased globally over farmers' mental health issues. With such a huge population relying on agriculture as their primary source of occupation, it becomes even more important for us to understand the mental health issues experienced by the farmers. A systematic review of the outcomes, locations, study designs, and methods of current studies on farmers' mental health was presented by Yazd et al (2019). The four most-cited influences on farmers' mental health in the reviewed literature respectively were pesticide exposure, financial difficulties, climate variabilities/drought, and poor physical health/past injuries. Comparative studies on the mental health of farmers and other occupational workers showed mixed results, with a larger portion identifying that psychological health disturbances were more common in farmers and farm-workers. Knowledge of farmer psychological disorder risk factors and its impacts are essential for reducing the burden of mental illness.

Another study was conducted by Bomble & Lhungdim (2020) to examine the mental health status of Farmers in Maharashtra, India. The sample size was distributed proportionately in each village using Probability Proportional to size (PPS) sampling method. The results of this study indicated that More than half 58%of farmers have reported distress of mental health and

41.7% farmers were reported no distress of mental health in last two weeks. Mean of the mental health status of farmers is 0.58, and standard deviation (SD) is 0.49. The most commonly reported symptoms of mental health pertained to anxiety and insomnia, with 55% of farmers suffering from these symptoms. The second highest ranking prevalence of symptoms is somatic problems (34.7%).

Dongre & Deshmukh (2012) conducted a qualitative exploratory research on the farmers' suicides in Vidarbha region of Maharashtra. The findings indicated that the reasons behind farmers suicide are as follows: Farmers perceived debt, addiction, environmental problems, poor prices for farm produce, stress and family responsibilities, government apathy, poor irrigation, increased cost of cultivation, private money lenders, use of chemical fertilizers and crop failure. It was the result of a complex interplay of social, political and environmental constraints. The participants suggested solutions such as self-reliance and capacity building among farmers, a monitoring and support system for vulnerable farmers, support and counselling services, a village-level, transparent system for the disbursement of relief packages.

One of the most common methods through which the farmers commit suicide, is by ingesting poisonous pesticides. Chowdhury et al. (2007) aimed at studying and examining the role of pesticide poisoning in suicide and nonfatal deliberate self-harm, and clarify awareness of risks, safe practices concerning storage and use of pesticides, and associated self-injury, both unintentional and intentional, within farmer households of the Sundarban region, India. Retrospective record review of adult cases of deliberate self-poisoning at the Block Primary Health Centres of 13 Sundarban Blocks was performed to analyse the relative roles of various methods of self-harm and their lethality. Focus group discussions, questionnaires, and in-depth interviews were undertaken in a community study of farmer households to examine pesticide related views and practices, with particular attention to storage, use, and health impact.

There are substantial variations in the reported number of farmers who commit suicide in India, each year. If the data from the National Crime Records Bureau (NCRB) is accepted, it emerges that there have been 5650 farmer suicides in 1 year (2014), itself. Maharashtra is considered to be India's farmer suicide epicentre and has recorded 20,504 farmers suicides since 2001. These alarming numbers should act as the motivational source behind agricultural reforms that are helping farmers, thereby protecting them.

CHAPTER: 3

METHODOLOGY

3.1 Setting

The present study attempts to understand the self-efficacy of farmers by evaluating their enactive mastery experience and their control on physiological and emotional states. This study is based on the work done by Dr. Debdulal Dutta Roy, where five domains of the self-efficacy of agricultural farmers were conceptualized, based on Bandura's model of self-efficacy. A 50-item questionnaire was developed initially, to assess the five domains or sub-constructs of farmer's self-efficacy.

3.2 Questionnaire Construction

3.2.1 Focused Group Discussion

With the support of NGO's and Krishi Vigyan Kendras and the West Bengal Government, few focused group discussions were made at Dumajuli and Canning block of South 24 paraganas, Budbud of Burdwan, Baduria of North 24 paraganas. Discussion focused on types of crop production, uncertainties, awareness of government schemes, training facilities, psycho-social issues involved in agriculture like identity crisis, role stress etc. Number of participants were 30 approximately.

3.2.2 Observation and Interview:

Besides discussion, farming processes and farms of agricultural farmers were observed carefully. Photographs and verbatim were recorded to construct socio-economic schedule and self-efficacy questionnaire. A job profile of farmers was developed. Finally, specific capabilities of farmers with five different facets of self-efficacy were explored and indicating behavior for each dimension was conceptualized. The indicators were used for construction of items in Bengali, the local language of the farmers. Finally, a 50 items questionnaire was developed following standard rules (no ambiguity, single trait approach, simple and short) of questionnaire development.

3.2.3 Farmer's Self-Efficacy Questionnaire

A 50-item questionnaire was developed in order to assess farmer's self-efficacy. The questionnaire consists of five domains: Monitoring environmental uncertainty, Enactive mastery experience, Self-regulation, Vicarious experience and Controlling physiological and

emotional states. The first domain defines the belief in one's capability to monitor changes in the task agent of the agricultural environment and consists of 10 items. The second domain defines the capability to play the roles and responsibilities of an agricultural farmer and it consists of 10 items. The third domain defines the belief in one's capability to regulate self for goal setting and its achievement and it consists of 12 items. The fourth domain defines the belief in the capability to imitate successful farmers and to follow the agricultural related information of mass-media and it consists of 10 items. The fifth and the last domain of the questionnaire defines the belief in one's capability to control self-anxiety and physical illness and consists of 9 items.

3.3 Participants

The questionnaire was administered to 298 farmers of 8 blocks in 6 different districts. Participants included 29 farmers of Vaduria block (North 24 paraganas), 66 farmers of Hingelganj block (North 24 paraganas), 33 farmers of Khamaria block (Howrah), 29 farmers of Galsi block (Burdwan), 21 farmers of Nabaukhra block (Nadia), 48 farmers of Deganga block (North 24 Parganas), 40 farmers of Panskura block (Midnapore East) and 33 farmers of Balichak of Debra block (Midnapore West). Following exclusion and inclusion criteria were followed. Their mean age, working experience and level of education are given below:

Table 3.1

Demographic Details of the Participants

Locality	Age			Tenure			Education		
	n	M	SD	n	M	SD	n	M	SD
Vaduria (n=29)	29	37.9	12.47	29	11.9	12.97	29	8.1	3.4
Hingleganj (n=66)	66	39	10.38	64	16	8.45	65	11	3.61
Khamaria (n=33)	33	47.73	15.56	26	24.58	14.89	32	23	13
Galsi (n=29)	28	28.32	11.01	20	15.25	10.44	27	11.52	3.94

Nabaukhra (n=21)	21	42.24	10.05	19	21.53	11.89	20	13	2.72
Deganga (n=47)	45	35.49	15.65	40	17.58	14.11	38	8.08	2.84
Panskura (n=40)	40	31.28	8.63	37	11.1	7.69	40	10.88	2.78
Balichak (n=33)	33	51.58	12.68	31	23.88	11.67	32	11.65	3.15

The exclusion criteria for collecting the sample are as follows:

- (a) Not suffering from psychiatric disorder or major physical illness
- (b) very senior in age
- (c) marginal labour.

The inclusion criteria for collecting the sample are as follows:

- (a) primary occupation is agriculture
- (b) possession of own agricultural land
- (c) minimum educational qualification should be grade VIII
- (d) age should not be more than 55 years

The sample description is as follows:

Farmers were middle aged (mean=40.27, SD=13.53 years), experienced in farming (mean=17.30, SD=12.26 years) and educated (Mean =10.27th grade, SD=3.69). They were mixed in religions, casts and tribes. Their main cultivations were rice, vegetables, potato, jute and pulses.

CHAPTER: 4

RESULTS

4.1 Data Analysis

The present study aimed to analyse and understand the levels of self-efficacy in farmers by measuring their enactive mastery experience and controlling physiological & emotional states. Farmer's Self-Efficacy Scale was used to collect data. It was then analysed using descriptive statistics, that included calculating the mean, median and standard deviation of the sample population. Inferential statistics was run comprising of inter-item correlation for two domains of the scale: Enactive mastery experience and Controlling physiological & emotional states.

4.2 Descriptive Statistics

Descriptive stats are used to summarize the given data set, which can be a representation of an entire population or a sample of the population. It can be calculated using measures of central tendency (mean, median or mode) and measures of variability (range, interquartile range, variance or standard deviation).

4.2.1 Domain 1 – Enactive Mastery Experience

Enactive Mastery Experience is defined as “the capability to play roles and responsibility of agricultural farmer.” This domain consists of 10 items, with a sample size of 286. Based on the descriptive stats, n ranges from 275 to 291 which indicates that there are missing entries in the responses. The mean for individual item ranges from 3.12 to 3.89, with item SE42 having a mean of 2.83, that is slightly lower than the other items on this domain. This indicates the farmer's ability to create new customers for the farm products. The grand mean of this domain is 3.52 and an SD of +/- 1.36 to 1.84. 40% of the items in this domain show a lower mean score when compared with the grand mean, which can be indicative of difficulties in their ability to engage in agricultural activities most of the time (SE2), being able to perform agricultural activities despite physical and mental weakness (SE12), being able to successfully follow any form of high-yielding technology (SE27) and getting newer customers for their farm products (SE42).

These findings can be linked to that of the previous dimension, where because individuals are unable to receive proper training due to scarcity in agricultural training centres, they are unable to build up on their already existing work such as working for longer hours, using any latest

technology or learning any sales tactics to grow their customers. It can also have an impact on the overall health of an individual, thereby making it difficult for them to continue their work as a result of physical and/or mental weakness. As the lowest score is seen on item SE42, it points to the fact that despite all the opportunities and advancements, the farmers are unable to reach a bigger market platform where their produce can be showed and sold to a bigger audience. As a result, despite having the knowledge of how everything works, and working as a responsible farmer, they might not be able to attain the desired level of outcome of their hard work.

Table 4.1

Descriptive Statistics for Enactive Mastery Experience

Item	Enactive Mastery Experience					
	Mean	Mean Difference ($X_{GM}-X$)	SD	N	Correlation Coefficient	p-value
S2	3.12	0.4	1.50	275	0.38	0.000
S7	3.58	0.06	1.43	275	0.60	0.000
S12	3.38	0.14	1.50	277	0.46	0.000
S17	3.81	0.29	1.36	277	0.61	0.000
S22	3.89	0.37	1.43	278	0.62	0.000
S27	3.49	0.03	1.40	278	0.49	0.000
S32	3.66	0.14	1.38	281	0.55	0.000
S37	3.84	0.32	1.31	279	0.55	0.000
S42	2.83	0.69	1.73	275	0.57	0.000
S47	3.61	0.09	1.84	277	0.54	0.000
Total	35.20		7.98	286		

4.2.2 Domain 2 – Controlling Physiological & Emotional States

The Physiological & Emotional States is defined as “the belief in one’s capability to control self-anxiety and physical illness”. This domain consists of 9 items, with a sample size of 286. Based on the descriptive stats, n ranges from 271 to 279 suggesting missing responses from the participants. The mean of individual items in the domain is seen to be between 3.30 to 3.91, with item SE25 having a mean of 4.02, that is slightly higher than the other items on this

domain, indicating the ability of the farmers to apply their experience of loss in the future. The grand mean of this domain is 3.50, with an SD of +/-1.36 to 1.77. 55% of the items in this domain have a lower mean score as compared to the grand mean, that indicates lower levels of efficiency when it comes to maintaining their physiological and/or emotional stress. The respondents had issues with overcoming anxiety related to agriculture (SE5), feeling depressed after experiencing repeated loss (SE20), being able to take any incurred loss with ease (SE30), being unable to take responsibility for the non- production of crops as per what is anticipated (SE35) and being able to work on agriculture related problems with ease (SE45). As the lowest score is seen on item SE30, it indicates that the farmers need to be given resilience training, that can help them deal with any form of uncertainties or losses more efficiently, without causing any form of stress.

Table 2.2

Descriptive Statistics for Physiological & Emotional State

Item	Physiological & Emotional States					
	Mean	Mean Difference ($X_{GM}-X$)	SD	N	Correlation Coefficient	p-value
S5	3.30	0.20	1.58	271	0.52	0.000
S10	3.91	0.41	1.44	277	0.62	0.000
S15	3.51	0.01	1.46	274	0.61	0.000
S20	3.35	0.15	1.49	274	0.61	0.000
S25	4.02	0.52	1.24	279	0.57	0.000
S30	3.14	0.36	1.56	277	0.59	0.000
S35	3.34	0.16	1.63	273	0.44	0.000
S40	3.63	0.13	1.36	278	0.65	0.000
S45	3.31	0.19	1.77	274	0.63	0.000
Total	31.51		7.89	286		

4.3 Correlational Analysis

Inter-item correlation is a method of analysing and establishing the internal consistency reliability. If two items have high inter-item correlation, statistically and psychometrically, they

are practically the same and measure exactly the same, which implies a redundancy that would unnecessarily lengthen the test. Inter-item correlation values should be >0.3

4.3.1 Domain 1 – Enactive Mastery Experience

According to the inter-item correlation matrix, it is observed that item SE42 has high levels of correlation with item SE47 (i.e., 0.54), followed by the correlation between item SE7 and SE17 (i.e., $r=0.44$). There are items that have fairly poor correlation between them, $r=0.09$ to 0.19 , indicating that the items are not correlated well. There are items having negative correlation between them, indicating that they are negatively associated with each other.

The median correlation coefficient was calculated using the R-script software. This analysis acts as an indicator of which item from the domain is more related to all the other items of the same domain. It helps us identify the degree to which a particular item is correlated with all the other items in the domain. The findings indicate that item SE17 (median= 0.27) is highly correlated with all the other items of this domain.

Table 4.3

Inter-Item Correlational Statistics for Enactive Mastery Experience

Variables	N	Mean	SD	SE2	SE7	SE12	SE17	SE22	SE27	SE32	SE37	SE42	SE47
SE2	275	3.12	1.50	1.00	0.16**	0.19**	0.23**	0.12*	0.21**	0.09	0.19**	-0.04	-0.02
SE7	275	3.58	1.43	0.16**	1.00	0.31**	0.44**	0.27**	0.19**	0.22**	0.26**	0.28**	0.19**
SE12	277	3.38	1.50	0.19**	0.31**	1.00	0.27**	0.18**	0.14**	0.26**	0.13*	0.00	0.05
SE17	277	3.81	1.36	0.23**	0.44**	0.27**	1.00	0.32	0.18**	0.37	0.35**	0.14**	0.14**
SE22	278	3.89	1.43	0.12*	0.27**	0.18**	0.32	1.00	0.20**	0.20**	0.26**	0.33**	0.42**
SE27	278	3.49	1.40	0.21**	0.19**	0.14*	0.18**	0.20**	1.00	0.32**	0.20**	0.19**	0.07
SE32	281	3.66	1.38	0.09	0.22**	0.26**	0.37	0.20**	0.32**	1.00	0.35**	0.22**	0.15*
SE37	279	3.84	1.31	0.19**	0.26**	0.13*	0.35**	0.26**	0.20**	0.35**	1.00	0.22**	0.15*
SE42	275	2.83	1.73	-0.04	0.28**	0.00	0.14**	0.33**	0.19**	0.22**	0.22**	1.00	0.54**
SE47	277	3.61	1.84	-0.02	0.19**	0.05	0.14**	0.42**	0.07	0.07	0.15*	0.54**	1.00

*p<0.05 level, ** p<0.01 level

Table 4.4

Interpretation of Inter-Item Correlation Coefficient

Item Code	Item with Highest Correlation	Correlation Coefficient	Significance Level	Median	Item
SE2	SE17	0.23**	0.01 (99%)	0.12	Able to engage in agricultural activities most of the time
SE7	SE17	0.44**	0.01 (99%)	0.26	Able to be successful in new agricultural techniques
SE12	SE7	0.31**	0.01 (99%)	0.18	Despite of physical and mental weakness, can do agricultural work
SE17	SE7	0.44**	0.01 (99%)	0.27	When needed, able to acquire agricultural skills and abilities
SE22	SE47	0.42**	0.01 (99%)	0.26	Able to ignore words against agriculture
SE27	SE32	0.32**	0.01 (99%)	0.19	Able to be successful in following high yielding technology
SE32	SE37	0.35**	0.01 (99%)	0.22	Able to solve agricultural problems alone
SE37	SE17	0.35**	0.01 (99%)	0.22	If needed, can collect raw materials from other sources
SE42	SE47	0.54**	0.01 (99%)	0.22	Able to create new customer for farm products
SE47	SE42	0.54**	0.01 (99%)	0.15	Able to repay the loan in spite of any difficulties

4.3.2 Domain 2 – Controlling Physiological & Emotional States

The inter-item correlation matrix for this domain shows the highest correlation between items SE40 and SE45 (i.e., r=0.50), followed by items SE10 and SE20 (i.e., r=0.42). There are many other items with good correlation between them, where the r ranges from 0.20 to 0.38. There

are a few items with very low correlation, that is not significant. Overall, the items have good correlation between them and measure the same underlying characteristics for physiological & emotional stress.

The median correlation coefficient was calculated using the R-script software. This analysis acts as an indicator of which item from the domain is more related to all the other items of the same domain. It helps us identify the degree to which a particular item is correlated with all the other items in the domain. The findings indicate that item SE10 (median=0.32) is highly correlated with all the other items of the domain.

Table 4.3

Inter-Item Correlation Coefficient for Physiological & Emotional States

Variables	N	Mean	SD	SE5	SE10	SE15	SE20	SE25	SE30	SE35	SE40	SE45
SE5	271	3.30	1.58	1.00	0.34**	0.27**	0.15*	0.26**	0.20**	0.07	0.22**	0.23**
SE10	277	3.91	1.44	0.34**	1.00	0.30**	0.42**	0.34**	0.34**	0.22**	0.24**	0.26**
SE15	274	3.51	1.46	0.27**	0.30**	1.00	0.32**	0.37**	0.21**	0.14**	0.34**	0.28**
SE20	274	3.35	1.49	0.15*	0.42**	0.32**	1.00	0.33**	0.28**	0.17**	0.32**	0.21**
SE25	279	4.02	1.24	0.26**	0.34**	0.37**	0.33**	1.00	0.18**	0.14*	0.31**	0.21**
SE30	277	3.14	1.56	0.20**	0.22**	0.21**	0.28**	0.18**	1.00	0.22**	0.33**	0.38**
SE35	273	3.34	1.63	0.07	0.20**	0.14**	0.17**	0.14*	0.22**	1.00	0.21**	0.10
SE40	278	3.63	1.36	0.22**	0.24**	0.34**	0.32**	0.31**	0.33**	0.21**	1.00	0.50**
SE45	274	3.31	1.77	0.23**	0.26**	0.28**	0.25**	0.21**	0.38**	0.10	0.50**	1.00

*p<0.05 level ** p<0.01 level

Table 4.4

Interpretation of Inter-Item Correlation Coefficient

Item Code	Item with Highest Correlation	Correlation Coefficient	Significance Level	Median	Item
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SE5	SE10	0.34**	0.01 (99%)	0.22	Can overcome agriculture related anxiety
SE10	SE20	0.42**	0.01 (99%)	0.32	Able to keep mentality strong in loss
SE15	SE25	0.37**	0.01 (99%)	0.29	Can keep self in resting phase during worry
SE20	SE10	0.42**	0.01 (99%)	0.30	Not to be depressed for repeated loss
SE25	SE15	0.37**	0.01 (99%)	0.28	Able to apply experience of loss in future
SE30	SE45	0.38**	0.01 (99%)	0.22	Can take the loss at ease
SE35	SE30	0.22**	0.01 (99%)	0.15	Not to make responsible for non-production of crop as anticipated
SE40	SE45	0.50**	0.01 (99%)	0.31	Helping other farmer to overcome anxiety
SE45	SE40	0.50**	0.01 (99%)	0.25	Can keep self at ease during agriculture related problems

CHAPTER: 5

DISCUSSION

5.1 Summary & Discussion

The present study entitled “Enactive Mastery Experience and Controlling Physiological & Emotional States of Farmers” aimed at understanding the concept of self-efficacy given by Albert Bandura and how it can be used to understand the self-efficacy beliefs of farmers. Bandura (1977) theorized that people’s belief in their efficacy are developed by four main sources of influence, which are: (i) mastery experiences, (ii) vicarious experiences, (iii) social persuasion, and (iv) emotional and physiological states.

A stronger sense of self-efficacy would help strengthen the beliefs of the agricultural farmers of our country, in their ability to play the role of an agricultural farmer and sustain their agricultural produce. A higher sense of enactive mastery in farmers can ensure that they believe they can develop the control they have on their farming activities. It is also indicative of a clear understanding of their role, thereby reducing the probable role conflict and role stress. When farmers have a strong control on their farming activities, the role stress/conflict would not arise.

The emotional, physical as well as psychological well-being of an individual at a given time, while performing a given task, can have a significant influence on how they feel about their personal abilities in the presenting situation. Affective state of a person can also have a significant impact on one’s judgement of their self-efficacy. Positive mood enhances the perception of one’s self-efficacy, while having a despondent mood can reduce it. Although a significant portion of our country’s population depends on agriculture as the source of their income, due to lack of availability of resources, it might be difficult for the farmers to keep up with the ever-changing trends. This can act as a source of stress and anxiety for the farmers, thereby having a significant impact on the physical as well as psychological health of the farmers.

A 50-item questionnaire was developed initially by Dr. Debdulal Dutta Roy, in order to assess the five domains or sub-constructs of farmer’s self-efficacy: Monitoring environmental uncertainty, Enactive mastery experience, Self-regulation, Vicarious experience and Controlling physiological and emotional states. Data was collected and analyzed using descriptive statistics, that included calculating the mean, median and standard deviation of the sample population; and inferential statistics. comprising of inter-item correlation for two

domains of the scale: Enactive mastery experience and Controlling physiological & emotional states.

The interpretation of the results obtained from the descriptive and inferential analyses can be used to understand the present situation of farmers in the country. The results indicated that the participants they are unable to build up on their already existing work such as working for longer hours, using any latest technology or learning any sales tactics to grow their customers. Despite all the opportunities and advancements, the farmers are unable to reach a bigger market platform where their produce can be showed and sold to a bigger audience. As a result, despite having the knowledge of how everything works, and working as a responsible farmer, they might not be able to attain the desired level of outcome of their hard work.

It was also seen that the farmers needed to be given resilience training, that can help them deal with any form of uncertainties or losses more efficiently, without causing any form of stress. Researches have shown that any farmers resort to ending their lives using various means as a result of the stress and anxiety caused by the various factors. The farmers perceived debt, addiction, environmental problems, poor prices for farm produce, stress and family responsibilities, government apathy, poor irrigation, increased cost of cultivation, private money lenders, use of chemical fertilizers and crop failure as the most significant reasons for farmers' suicides (Dongre & Deshmukh, 2012). From a humanitarian point of view, the tragedy of farmer suicide demands prompt attention. As a starter, farmers need to be protected from falling into the trap of the spiralling debt, which is the primary risk factor for suicide. For this, farming must be protected from failure and made profitable. Attention should be focused on the development of an all-encompassing relief scheme after consulting farmers and farmer movements.

5.2 Limitations

The present study was an attempt to understand the concept of farmer's self-efficacy, emphasizing on two domains of the questionnaire, namely Enactive Mastery Experience and Controlling Physiological & Emotional States. Despite this, following are the limitations of the study, which can be taken into consideration for future studies and researches:

- The researcher only worked on two out of five domains of farmer's self-efficacy scale, which resulted in a domain-specific results & interpretation, instead of a holistic approach of understanding farmer's self-efficacy with the help of all five domains.

- The raw data of the original study was unavailable to the researcher, as a result of which the obtained evaluations and interpretations are based on already existing findings from the data analysis.
- Principal Component Analysis was not run in the present study.

5.3 Implications

The findings of this study have implications in the field of agricultural psychology, which has a direct impact on the farmers of our country. It also affects the agrarian movement in the country, where more robust changes can be made in order to facilitate the agriculture advancements and ensure that the farmers remain updated regarding the innovations and mechanizations.

5.4 Future Suggestions

Future research can involve:

- Correlational analysis of all the five domains of the farmer's self-efficacy scale
- Principal Component Analysis of the 50/30 item questionnaire in order to establish and validate the scale.
- External Validity of the scale can be established by collecting data on other related tools to measure self-efficacy.

5.5 Conclusion

The present dissertation work entitled "Enactive Mastery Experience and Controlling Physiological & Emotional States of Farmers" aimed at understanding the domains of farmer's self-efficacy and the role it plays in the field of agricultural psychology. It was seen that although there are various aspects that contribute and enhance the self-efficacy of our agricultural farmers, there were equally, if not more, factors that had a detrimental effect on the farmer's self-efficacy beliefs, that lead them to take drastic measures. A holistic, all-inclusive system needs to be developed, that focuses on bridging the gap generated between the rural-urban population and their attitude towards the profession of agriculture.

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APPENDICES

APPENDIX A

Farmer's Self Efficacy Questionnaire

Domain	Sr. No.	Item	Item Code
Monitoring Environmental Uncertainty	1	Able to prove wrong information as incorrect	SE1
	2	Can find out agricultural training centre	SE6
	3	Able to reach at training centres how far it is	SE11
	4	Can inspect plant condition every day in spite of other commitments	SE16
	5	Able to collect new agricultural information.	SE21
	6	Able to be successful in agricultural experiment	SE26
	7	Able to monitor regularly the effect on plant after application of fertilizer	SE31
	8	Can examine raw materials during purchase	SE36

	9	Can do experiment on new technology in small plot of land.	SE41
	10	Judging the procedures for repayment of loan.	SE46
Enactive Mastery Experience	1	Able to engage in agricultural activities most of the time	SE2
	2	Able to be successful in new agricultural techniques.	SE7
	3	Despite of physical and mental weakness, can do agricultural work	SE12
	4	When needed, able to acquire agricultural skills and abilities	SE17
	5	Able to ignore words against agriculture	SE22
	6	Able to be successful in following high yielding technology	SE27
	7	Able to solve agricultural problems alone	SE32
	8	If needed, can collect raw materials from other sources	SE37
	9	Able to create new customer for farm products	SE42
	10	Able to repay the loan in spite of any difficulties	SE47
Self- Regulation	1	Regulating self despite of agricultural anxiety	SE3
	2	Able to maintain production goal in spite of difficulties	SE8
	3	Able to pay much attention to specific plans with poor growth	SE13
	4	Able to determine correct amount of fertilizers and insecticides	SE18
	5	Able to regulate balance between profit and loss	SE23
	6	Can control excess application of fertilizers and insecticides	SE28
	7	Able to control not to take much loan though there is a scope	SE33
	8	Able to determine specific agricultural training	SE38
	9	Able to control unreasonable amount of expenditures in agriculture	SE43
	10	Creating specific market for produced crops.	SE48
	11	Maintaining crop quality according to the demand of customers	SE50
Vicarious Experience	1	Able to imitate successful farmers	SE4
	2	Able to apply experience of successful farmers	SE9
	3	Able to ask other's advice during problem	SE14
	4	Able to participate into any agriculture related discussion	SE19
	5	Can listen to experienced farmers' words	SE24

	6	Can adopt skills of experienced farmers	SE29
	7	Can apply knowledge through training	SE34
	8	Can apply mass-media based information in own farming practices	SE39
	9	Can apply experience of senior farmers after judging	SE44
	10	Considering self as successful farmers	SE49
Controlling Physiological & Emotional States	1	Can overcome agriculture related anxiety	SE5
	2	Able to keep mentality strong in loss	SE10
	3	Can keep self in resting phase during worry	SE15
	4	Not to be depressed for repeated loss	SE20
	5	Able to apply experience of loss in future	SE25
	6	Can take the loss at ease	SE30
	7	Not to make responsible for non-production of crop as anticipated	SE35
	8	Helping other farmer to overcome anxiety	SE40
	9	Can keep self at ease during agriculture related problems	SE45

ANNEXURE

Details			Study Design	Participants		Partici- -pant size	Instru- ments used	Data Analysis	Findings
Author	Year	Country		Source	Characteristics				
Albert Bandura, Nancy E. Adams and Janice Beyer	1977	USA	Pre-test post-test experiment	Advertisements in community newspapers	Individuals who suffered from chronic snake phobias	33	Standard assessment procedure for microanalysis of changes in self-efficacy and avoidance behaviour	ANCOVA	Control group subjects experienced less fear than the subjects assigned to participant modelling [F(1,53)=9.03, p<.01] and modelling treatments [F91,53)=7.85, p<.01]
Nicola J. Beatson, David A.G. Berg and Jeffrey K. Smith	2018	New Zealand	Survey	Undergrad-students	All the students enrolled in the introductory accounting class	NA	Mid-term examination result	Correlation analysis	Positive relationship between midterm examination results and student sense of self-efficacy at the end of the course

Griselda Murrieta Loyo, Maria del Rosario Reyes Cruz	2019	Mexico	Qualitative, exploratory research design	7 foreign language teachers	Teachers from a Mexican public univeristy	7	In-depth interviews	Correlation analysis	Previous experience of teaching a language influences the self-efficacy beliefs of the teachers, which differ based on the subject type and educational level of teaching
Kim Sooyoung	2005	USA	Experimen- tal design	University students	-	94	Structured interview	Pearson's correlation and multiple regression analysis	Online course experiences were found to be significantly and positively related to OCSE (t=2.593*, B=287*, p=.011)
Anastia Sabila Billiny	2019	Indonesia	Experimental , pre-test, post-test comparison	Eleventh grade students	Low level of career decision-making self-efficacy (from 128 students)	24	Career Decision Self-Efficacy Scale (CDSSES)	One-way ANOVA	In the Enactive Mastery Experience group (M = 55.88, SD = 1.96). The results of one-way ANOVA test showed that the group counselling with vicarious experience, enactive mastery experience and the combination of vicarious experience and enactive mastery experience in the groups indicated effective results in improving

									career decision making self-efficacy ($F_{2,21} = 3.55, p < 0.01$).
Ranjan Roy, M. Shivamurthy and Rama B. Radhakrishna	2013	India	Ex-post facto research design	Previous batch of training program	Participants who have completed value addition training during 2009 to 2010	50	5-point Likert scale to assess perceived knowledge, acquisition skill level and adoption level	Multiple regression analysis	The five variables - education, post-harvest knowledge, extension contact, attitude towards value addition and membership of SHGs had a significant contribution to the variation in perceived knowledge, acquisition of skill and adoption of FTI participants. The F-value (3.37) and regression analysis were significant at 0.01 level.
Gerard McElwee	2006	UK	Literature review	NA	NA	NA	The topics which have been the subject of farm entrepreneurship research	NA	There are some limited emergent trends in the literature and that a number of key topics are receiving higher levels of attention than others: namely farm diversification and farmers' enterprise skills

Fernando Lourenço , Natalie Sappleton , Akosua Dardaine-Edwards , Gerard McElwee , Ranis Cheng , David W. Taylor , Anthony G. Taylor	2014	Uganda	Practitioner-based reflection	NA	Female rural entrepreneurs	NA	Training and interaction with women farmers and entrepreneurs	NA	A series of barriers to female rural entrepreneurs are highlighted: lack of access to credit, gender inequality, poor infrastructure, lack of access to knowledge and education, negative attitudes towards women and few initiatives to facilitate economic and business success.
Tushar Agarwal	2011	India	Literature review	NA	NA	NA	Overview of vocational education and training (VET) system in India, and discusses various	NA	The findings indicated a high rate of unemployment (11%) for VET holders in the age group 15–29 years. Although the unemployment rate of VET holders was higher than the overall unemployment rate in the same age group, the rate was found to be lower than that for general secondary

							challenges and difficulties in the Indian VET system		graduates. It was also seen that average daily wages were reportedly higher, both for regular and casual workers, for VET holders.
Dr. Ravindra Tripathi and Sweta Agarwal	2015	India	Literature review	NA	NA	NA	Rural development by promoting agripreneurship	NA	The study concluded that the challenges faced by agripreneurs are as follows: lack of funds, lack of infrastructure, risk, marketing problems & competition and management problems. The management problems were further divided and specified into the following: Lack of technological dissemination, Legal formalities and regulations, Availability of resources, Lack of technical knowledge, Quality Control and Low skill level among farmers

M. Najafi & M. Foladjang	2007	NA	Experimental research design	High school students	Third grade students	300	Self-Efficacy Scale and SCL-90-R	t-test and correlation analysis	Results revealed that there is a significant relationship between self-efficacy and mental health and low levels of self-efficacy were accompanied by high levels of pathological symptoms. The findings did not suggest a significant difference between self-efficacy and mental health in girls and boys.
Moslem Parto	2011	Iran	Experimental research design	High school students	First grade students	914	General Self-efficacy Scale, Problem Solving Inventory, Gambrill-Richey Assertion Inventory, General	Descriptive and path analysis	The self-efficacy has a direct positive correlation with assertiveness and negative correlation with GHQ { $=\beta$ -.11, $t=-3.29$ }. Assertiveness was mediated on the relationship between self-efficacy and GHQ { $=\beta$.10, $t=2.89$ & $=\beta$ -.14, $t=-4.36$ }. Furthermore, problem solving has a direct positive correlation with assertiveness and negative correlation with GHQ { $=\beta$ -.32, $t=-9.33$ }. In addition, assertiveness was mediated on the correlation

							Health Questionnaire		between problem solving and GHQ { $\beta = .21, t = 5.74$ & $\beta = -.14, t = -4.36$ }. Overall, this model explains 19% of the variance in mental health among students.
Raheem J. Paxton & Robert W. Motl & Alison Aylward & Claudio R. Nigg	2010	USA	Exploratory study with model-testing	Ten organization-al settings on the island of Oahu in Hawaii	Older adults with healthy aging	196	Godin Leisure Time Exercise Questionnaire (GLTEQ) , modified version of the barrier self-efficacy scale and the self-efficacy for walking scale, Kessler Psychological Distress (K-10) symptom	multilevel covariance modeling with full information maximum likelihood (FIML) estimation in Mplus V5.0 software	The relationship between physical activity and QoL is indirect, but the models were not significantly different. In model 1, we observed a positive linear relationship between physical activity and self-efficacy. In turn, self-efficacy was negatively associated with poor mental health difficulties and positively associated with QoL. Mental health difficulties were also negatively associated with QoL. In model 2, physical activity was positively associated with self-efficacy and negatively associated with mental health difficulties; in turn, self-efficacy was

							scale, Satisfaction with Life Scale (SWLS) and the World Health Organization Well-Being Index (WHO-5)		positively associated with QoL, whereas mental health difficulties were negatively associated with QoL
Véronique Dupéré, Tamara Leventhal, Frank Vitaro	2012	USA	Experimental research design	Project on Human Development in Chicago Neighborhoods	Adolescents living in violent neighborhoods	2345	Self-efficacy scale	Descriptive and correlation analysis	Adolescents living in violent neighbourhoods tended to report lower self-efficacy beliefs, partly because they were more likely to experience fear in their neighbourhood .moving out of Chicago neighbourhoods marked by violence and low collective efficacy to neighbourhoods outside of the city was associated with adolescents' increased self-efficacy.

Sahar Daghigh Yazd, Sarah Ann Wheeler* and Alec Zuo	2019	Australia	Systematic review using standardized electronic literature search strategy and PRISMA guidelines	NA	NA	NA	NA	NA	The four most-cited influences on farmers' mental health in the reviewed literature respectively were pesticide exposure, financial difficulties, climate variabilities/drought, and poor physical health/past injuries.
Priyanka Bomble & Hemkothan g Lhungdim	2020	India	Cross-sectional study design	Households were stratified based on the loan amount to ensure that all types of borrower-farmers were	The sample size was distributed proportionately in each village using Probability Proportional to size (PPS) sampling method.	300	General Health Questionnaire -28	Univariate, Bivariate and logistic regression analysis	The results of this study indicated that More than half 58% of farmers have reported distress of mental health and 41.7% farmers were reported no distress of mental health in last two weeks. Mean of the mental health status of farmers is 0.58, and standard deviation (SD) is 0.49. The most commonly reported symptoms of mental health pertained to anxiety and insomnia, with 55% of farmers suffering from these symptoms. The

				included in the sample					second highest ranking prevalence of symptoms is somatic problems (34.7%).
Amol Dongre & Pradeep Deshmukh	2012	India	Qualitative exploratory research design	23 villages surrounding a health centre in Maharashtra	Triangulation of free list and pile sort	NA	Consent form, free list exercise	Multi-dimensional scaling and hierarchical cluster analysis of pile sort data	Farmers perceived debt, addiction, environmental problems, poor prices for farm produce, stress and family responsibilities, government apathy, poor irrigation, increased cost of cultivation, private money lenders, use of chemical fertilizers and crop failure as the reasons for farmers' suicides. Participants suggested solutions such as self-reliance and capacity building among farmers, a monitoring and support system for vulnerable farmers, support and counseling services, a village-level, transparent system for the disbursement of relief packages.

Arabinda N. Chowdhury, Sohini Banerjee, Arabinda Brahma, and M. G. Weiss	2007	India	Retrospective record review	Block Primary Health Centres of 13 Sundarban Blocks	Adult cases of deliberate self-poisoning	NA	Pre-coded questionnaire with a largely yes/no answer format	Two-choice same sample dependent z-test	Pesticide poisoning was the most common method of deliberate self-harm in both men and women. Pesticide storage in most households was unsafe and knowledge was inadequate concerning adverse effects of pesticides on health, crops, and the environment.
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