Critical Rationalism and Social Constructionist: Bases for Research Design Objectives

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Abstract: ***In the epistemology of business, a critical question would be how one will be able to assess the data and determine business theory? Utilizing empirical study and using inductive or deductive methods in testing hypotheses one will be able to arrive to conclusion in the quest of business knowledge. This study describes the two epistemological approaches in assessing research objectives which are Foundation list and anti-foundation list approaches namely : critical rationalism and social constructionist are utilized in attaining business knowledge and checking the linkage of objectives in the research design . The approaches are appraised and compared fully in this work.***

Keywords: epistemology, Foundation, checking

I. INTRODUCTION

The philosophy of business anchors is the basic principle on creating an enterprise. Business research provides accuracy in search of business intelligence and is crucial to business . The basic tenet of business principle focuses on the nature and purpose of a business enterprise. The kind and goal of a business is taking into consideration in setting up as well as its role in the society as a social institution and its moral obligation .In the philosophy of business, it incorporates the study of ethics , economic theory, social philosophy , sociology as well as political science. Business based on inductive reasoning assume that the future resemble with the past. This is challenging especially with the complex factors affecting customers or clients, regulations, competitors ,technology and environmental factors among others. It is problematic to consolidate these variables in in attaining high level of confidence on judgment of business problems. It is on this parameter that the degree of error will be encountered .

Theorist in business may ask to what level an intuition play a significant role on business knowledge .Is gut feeling a factor to aid business intelligence? Is business intuition a real thing or through vicarious experience in dealing business make it intuitive? Marketers and business practitioners believe that in marketing product, services and ideas one will use psychology as well as technology to reach its goal which is to satisfy the customers being its target market. In globalization of business, information technology plays a crucial role. There is a need to know information systems to address the need of times and to reach clients globally. On this study, like any other social science research undertaking opt to select two epistemological approaches to be tackled, foundationalist using critical rationalism and anti –foundationalist using social constructionist in assessing research objectives .

II. CRITICAL RATIONALISM APPROACH

Oxford dictionary defines foundationalism as knowledge, considered as a structure based on secure foundations and anchored on reason and experience while anti-foundationalist rejects foundationalist approach.

Business knowledge play a vital role in any business undertaking. Information will enhance efficiency and effectiveness in dealing business operations. What is information then? To paraphrase what Dr. Johnson stated on his popular English dictionary dated 1755 , he stipulated the three uses of the term information: instruction or knowledge given, charge and the act of instructing. He emphasized that the second meaning is a special application in the field of law . The third gave meaning to ontology and both meanings derived from Greek philosophy. The term information indicates intelligence given and can be traced way back on the 14th century. The meaning relates on instruction at the academe.

Information can be equated to concepts normally a person hears or listen to. The meaning of information depends on his background and knowledge of the terminology. The meaning of the term is culture bound. Therefore, the distinction of the epistemological and ontological are the following: in verbal communication the information we normally hear are related to concepts to in answering somebody upon hearing the uttered words from the one who relay the message and the information given. There is a common belief of the meaning of the term and its importance. This simply means that in the process of sharing inputs or information to someone, the message is conceptualized. This observation still prevail on this point of time in the English language. This difference can be noted between the meaning of epistemological and ontological.

Based on Oxford dictionary, the term epistemological has various meanings: a) instruction given on training or teaching leading to develop one's character and one's mind; b) relating information as in relaying news, facts or telling information to others; c) intelligence, idea relayed with regards to fact, event subject like news; d) can be an act of accusing a person utilized in legal systems.

In the previous research problem on language learners 'willingness to adopt e -learning system, the author tried to investigate the theoretical framework of the study. It can be traced that the paradigm used in the internet based application study utilized in Singapore was contributed by Liao and Cheung. It can be highlighted that they based the data gathered utilizing survey method in the study using various factors such as education on information technology and the use of computer technology.

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Further, it was found out that it significantly affects user willingness to adopt the system in assessing quality of the products, price among others. Critical Rationalism (CR) is a philosophy that deals on the status of the problem and its alternative course of actions or solutions. It promotes practical means in problems solutions. CR can be related with Sir Karl Popper's writings and influence which cover theory on politics, quantum mechanics, logic, scientific method and the nature of mind and knowledge. Critical rationalists anchored on scientific theories and several knowledge claims can be criticized in rational manner and can be subjected to validations which may falsify them. In critical rationalism it rejects the idea that knowledge is justified true belief rather knowledge is unjustified belief. The presence of non-existence of good reason make it unjustifiable. The statement is false because some errors are not noted for hundreds of years.

Critical rationalism was developed from research done by Wuzburg School of Psychology. This school intended to develop a deductivist philosophy of science to go hand in hand with deductivist psychology. While doing on this worthwhile undertaking , Karl Popper was able to realize a non-justification theory of scientific knowledge. He explained the growth of knowledge without proof and non-justification. The theory, without supporting framework that can be proven. Further, Bertrund Russell thought that critical rationalism was a philosophy of despair and what critical rationalism are two main questions that the researcher want to discuss; first is: How do we determine what we know and to what extend that it is true or false? This is an academic issue however, people who believes in astrology, advertising, politics may think it is the real scenario. On the other hand, the second question : what is the best course of action in solving problems? Problems can be viewed that in certain situation one has to divert or change for it: you are in a given situation, and you would like to change for it. Life is full of challenges and so in gaining new knowledge.

The second inquiry is dependent on the first taking into consideration that given a clear statement of the problem appropriate alternative courses of action be considered . Popper emphasized that how science play a vital role in how one will be able to validate if it is the real scientific knowledge . Science believed to be the most powerful tool in understanding the universe but at present no individual really understood why it is so.

Popper's philosophy is considered as a roadmap by many scientists. Peer review of all researches are practiced to polish the paper before it finally published in reputable journals. This action is observed to ensure that critical analyses on research results has been applied. Human error cannot be avoided on the process of the analyses as science is considered as a human activity. CR suggests to do the best effort in minimizing against fraud and error.

Popper did not put at halt on science rather he used CR on other fields such as politics and society. Popper's endeavor was during at the time of totalitarian era on the 20th century such as the time of the Nazis, communism in Soviet Union and Communism in China. Generally, Popper's thought on authoritarian systems did not do good on achieving human ideals . Popper initiated two ideologies. The first idea was that progress in order to flourish must face several criticisms or else false ones may prevail. On this issue, it can be done in democratic society where debates and opinions are welcome. The second idea was that Nazism and communism described an ideal future that each brings about in its own way: this implies historicism. In human activity, it covers intended and unintended consequences however, unintended consequences are unpredictable. In the political field, open society is openly monitored, criticized and corrective action applied on its social and political undertakings.

CR gives practical guide in the quest of knowledge or new information, in checking the authenticity of information shared by others and in taking into consideration ways to solve problems utilizing the information at hand. It does not give ultimate solution to everything or to all the problems of life. In reality, CR manifests that there can be no such thing. One has to work within the framework of his knowledge. It can be noted that one can never have the whole truth and no one can ascertain about the consequences of one's actions. It is on the reason that science and technology work within this model and that it is considered as the most successful knowledge-driven human undertaking. The author summarizes the key points to consider in critical rationalism:

Theories and ideas should be subjected to criticisms and to countervailing evidences. Good ideas are encouraged but subject to scrutiny. One must be creative and adventurous in ideas even though some ideas will encounter rigorous criticisms.

1. Be abreast to the inevitable consequences of actions and be prepared to redirect the ideas that led to those circumstances.
2. Encourage the open ideas or opinions in whatever field one has influence: in most cases, promoting creativity in ideas, encourage debates and consistent review of the circumstances will be the best course of action in solving statement of the problem. Remember to bear in one's mind that there is uncertainty.
3. Great or small idea is encouraged and do not be deterred from one's ideas by the fact that one can never achieve perfection.
4. All actions should be properly guided by ethics. The application of ethics has practical reasons and that the ethical rules should be evaluated as rigorously as any other ideas.

It was always argued that , having the technical know - how of e-learning systems served as avenue to learners for the easy grasp of e-learning . The attitudes towards using the e-learning system made it significant and valuable to the e-learner.

III. SOCIAL CONSTRUCTIONIS

The social constructionist discusses theories of knowledge on sociological perspectives depicts how social objects of consciousness manage in social settings are considered social constructionism and social constructivism. Social construction in constructionist point of view can be compared to construct a certain group wherein one considered socially constructed if it is dependent on contingent variables of social selves rather than himself. A classic example is the concept of marriage wherein the term covers only in the social institution and society where the meaning is culture bound and not at the entire universe. Social constructivism based its assumptions on knowledge,

learning and reality. Social constructionism focus to disclose

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ways with the groups and its members joining together towards the workings of social reality. It covers understanding the means social phenomena are known, made and institutionalized as tradition by people. The knowledge and interpretations of social constructions of reality is an ongoing dynamic procedures done by people . Social constructionism as a replica of reality and must be sustained for its exixtence. The step opens the possibility of a shift which means a change of from one generation to next era. This manifests in the research considerations done earlier where learner had willingness to adopt technology into his or her systems. As noted on the study of e-learning systems as a support system was a necessity towards learning a specific language.

Like other body of knowledge , social constructionism focus its approach like psychology on the understanding of the term and its impact. The approach as epistemology focuses on the term and impact and one really has to know about it . Its goal is to validate for the means in which objects are socially constructed. Social "construction," "constructionism" and "constructivism" are terminologies widely used in the humanities and social sciences parlance. The term used to various meanings in the contexts of emotions, gender, race, mental health, technology, facts, reality, and truth among others. The term acts on number of various roles in different debates, like in philosophies, some on "naturalistic" approach—an approach that makes science as a central source of knowledge about the universe. If the main idea of social constructionism considers objects are controlled by social and cultural factors rather than natural ones then, core motivation of such research focuses on showing that such objects were under control.

Constructionism is always considered as theory used in education than theory with wider scope of social implications. In the academic point of view, constructionism expands to the term constructivism. Constructivists in social and developmental psychology point of view focus models as the subject of building knowledge and not as a passive receiver but an active constructor. Social constructionist inquiry is focus with the processes by which people gather to describe, explain, or otherwise account for the universe in which they live.

The theory on social constructionism introduced by a psychologist from Russia ,Vygotsky on the 1920s has been used by psychologists and academicians to develop skills in teaching profession. Social Constructionist Theory had four principles namely:

1. Learning as a collaborative social experience.
2. The area of proximal stages should be utilized by professors throughout the learning experiences.
3. Real world experiences that give students a meaningful view of learning and experiences in the internal of academic setting should be reinforced by external environment .

Social constructionism currently is understood as a meta theoretical alternative to positivism. It serves many social and cultural scientists as a point of reference. The possibilities to understand it as a psychological program of research that leaves space for agency and subjectivity usually are neglected. Promoting a dialogue with mainstream psychology constitutes one way of fostering social constructionist psychology. In addition, a theoretically productive conception of social constructionist psychology cannot do without reference to cultural psychology. An important advantage of such a conception lies in the increased number of possibilities for practical applications in hospitals, schools and factories. Whereas present applications of social constructionism tend to promote the post modernization and individualization of the client, applied social constructionist psychology avoids these concomitant effects.

A constructivist theory of innovation in technology is known as Social Construction of Technology (SCOT) motivated by the sociology of scientific knowledge (SSK)and the theory of symmetry. The impact of SCOT does not rely on successful endeavor alone rather to look at the other side of it, the social point of view of the innovation. SCOT debates that innovation in technology is not the outcome of geniuses who introduce the technology rather its impact or contribution to the society. SCOT debates that technological innovation is not about mythical men introducing new technologies to the society with their new impact , but its rather a a pure technology innovation that is complex enough to affect the society , also he discuss the concept of new technological artifacts and how they face resistance socially

IV. ANALYSES

Two epistemologies were introduced earlier: critical rationalism (foundationalist) and social constructionism (anti-foundationalist). Highlights of each school were discussed in the quest of seeking the appropriate framework for the research undertaking. On this paper, both research approaches have uniqueness as well as valuable contributions to the research objectives.

We can note that the research objective which is to measure the factors contributing to e-learning system awareness among language learners can be viewed in two perspectives. First, utilizing critical rationalism approach can be used in organized manner to enlighten the theories underlying usual software development. Popper's philosophy on the natural and the social aspects provide holistic philosophical model for assessing the newly emerged methodologies.

Moreover, e- learning system can be viewed as significant learning tool in information technology education. The constructivist approach to e-learning , an over-arching philosophy as a framework of theories and approaches in processing it. Contextual based procedure anchored on project-based instruction develop columns of support for information systems thinking. This scenario provides valuable learning through a real-world concept. Systems thinking serves as a vehicle of learning experience. Software design projects utilized system thinking approach in solving problems encountered. Learner will be able to appreciate and gives meaning on information technology using the constructivist point of view . The constructivist paradigm provides valuable contributions towards a successful appreciation of technology education.

V. CONSTRUCTIVISM IN SYSTEMS THINKING

According to a constructive learning philosophy, the persons with creative mindset and approach are regarded as endangered species like geniuses.

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However, in reality each individual is has his own unique ways and each person's experiences differ from others. This will put the individual in the scenario to have something unique and distinctive in giving others, if the individual can change that experiences into bright ideas and pass to other individuals. In this regard, its inferred that young learners can handle complex systems thinking even at the middle school level . Thus, they suggested using a constructivist approach to learning, through the technology based systems like e-learning systems. Concomitantly, Jacobson and Wilensky(2006) observers that "a central tenet of the constructivist or constructionist learning approach is that a learner is actively constructing new understandings, rather than passively receiving and absorbing 'facts'" (p.22). According to the theorists this learning methodology can aid students' understanding of complicated systems. Moreover , learner would indulge to more interesting and motivating tasks when assigned on genuine problems studied within cooperative learning environments. The pedagogical approach involving students creating questions, hypotheses and theories about particular phenomena and testing those propositions through an experimental models or construct was studied by Blikstein and Wilensky (2004) with the results suggesting a favorable scenario for constructive approach. This suggests that the students develop experiments or create conceptual models using e-learning platforms in the process of learning concepts or the languages. In similar approach, Jacobson and Wilensky (2006) recommended a constructivist approach based of e-learning systems within a team or group-learning environment. Further, Wankat (2002) and Becker (2002) opines that a constructivist approach is critical towards enhancing the quality of engineering and technology education under the group learning environment facilitated by technology based e-learning systems.

While emphasizing the fact that constructivism is inherent in the standards for technology literacy, Bransford et al. (2002) explained that a change from behaviorism to constructivism is crucial to educate and evaluate learners so that they are prepared for globalization. In this angle, Wankat(2001) warned against those who are critical in the content level, a phenomenon that takes place when the mentor lets the need to cover certain content in instruction control and learning methodologies that takes place in the classroom. This object of knowledge has been viewed as the main deterrent of engineering education over the years (National Academy of Engineering, 2004). Further, Todd Kelley and Nadia Kellam (2009) observe similar sentiments regarding teaching learning process in the technical education.

The concept of constructivism is based on the learner autonomy towards constructing knowledge already known by the learner. Thus, in the systems built on e-learning for Language teaching the learners have to construct knowledge themselves to certain extent in addition to their real learning through the systems. Also, the ability of the learners towards establishing constructivism will have the profound impact on their willingness to adopt such systems particularly for the purposes of language learning.

The advent of internet and the use of technology support like online learning as well as the use of information technology towards teaching/learning process has been the trend for the past years. Hence, it becomes extremely important to classify the theoretical underpinning supporting the pedagogical use of the e-learning systems which again is required to be analyzed by clear theoretical perspective. In the context of the early years of deployment into computer-mediated conferencing and web-based learning (Amundsen 1993; Mason & Kaye 1989), its understandable that knowledge is actively constructed by the learner, not passively received from the environment.

The concept of social constructivism is traced back to the works of Vygotsky (e.g., 1978), who focused on the roles played by the society in the development of an individual in terms of teaching and learning characters. The social world of a learner covers the people that directly affect the individual such as professors, administrators and other participants in the activities. This is in conformance of the social nature of local processes in collaborative learning and in at the wider social collaboration perspectives.

In this regard, Cobb (1994) examines further and reports that learning mindset of an individual is a function of his own insight and the social action towards him/her. Further, he argues that both perspectives should be used in concert, as they are each as useful as the other. Further Cobb (1998) emphasizes on the norms and practices of a classroom community in terms of perspective as reasoning of a collection of individuals mutually adapting to each other's actions.

This dialectic is examined in more detail in a study that suggest the ways these "acquisition" and "participation" metaphors of learning interrelate and interact in synergistic ways." (Salomon and Perkins, 1998).They models the social entity as a learner (for example, a business or a family), compare it with the learning of an individual in a social setting, and identify three main types of relations such as:

- Individual learning can be less or more socially-mediated learning.
- Individuals can participate in the learning of a collective, sometimes with what is learned , distributed throughout the collective more than in the mind of any one individual.
- Individuals and social aspects of learning in both of these senses can interact over time to strengthen one another in a "reciprocal spiral relationship."

According to Wood et al, (1995) utilizing social constructivism as a referent include teaching in contexts that might be personally meaningful to learners, negotiating shared meanings with co learners, classroom discussion, collaboration, and valuing meaningful activity over right answers. In the context of e-Learning systems for the purpose of language learning, these activities take place in an online computer mediated environment and thus, fit into the gamut of social constructivism. However, the approach of delivering mathematics as "content" against the technique has been contrasted by Cobb (1994) who was promoting the emergence of mathematical theories from the collective practices in the classroom setting. Thus, the main point is increasing on the use of various epistemologies, to sustain dialectic tension between.

guidance and learner-initiated exploration, as well as between social learning and individual

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learning. Constructivism-related techniques such as these are utilized more often in science courses and in mathematics in classroom settings, but perhaps not surprisingly, have been used for a longer time in communication subjects.

Further, it's interesting to note that the construction process of the wider community of learners as well as intellectual publishers: liberal quoting of each other's ideas, combining, arguing, extending and recombining them in order to construct our social and cultural understanding of thought of e-learning systems, understanding and ultimately human nature. Constructivism happens especially when the learner is engaged in constructing something for others to see like in the e-learning system:

Constructivism think of the constructivism's is a `building knowledge structures' for learning. Then learner is engaged in constructing a public knowledge body or entity about the universe . Experiences help to encourage one's personal construction of knowledge he aims to get. (Papert, 1990)

E-learning systems deployed for the purposes of language learning/teaching have been in tune with constructivism approach in the teaching learning process. As far as constructivism is concerned, it has become apparent that one of the most important processes in developing one's knowledge has been by explaining and exploring one's ideas in conversation with fellow learners. This proposition takes place between two of more different entities in the online learning environment. In reflection, it's understood that the impact of one's development was nurtured by actively joining in the ongoing dialogue and creating "texts" for others to reply or give back to a conversation or in class presentation.

To evaluate a number of educational practices ,the use of metaphor was encouraged. In particular, it observed through Gergen's work that, knowledge as fragments of dialogue, "knowledgeable telling" at a given time within an ongoing relationship. This relationship can be between learners, between a learner and a teacher, or between a learner and an environment experienced by the learner. This suits well into the systems of e-learning for the purposes of language learning. Gergen(1995) further describes a lecture as a conversation where the lecturer has already set the instruction content and the learner enters part-way through the dialogue and finds that they have no voice or to reason about it.

Steier (1996) viewed into this dialogue process in more detailed where it had been highlighted that on reflective thinking in social research, presented a number of ways of exchanging occurs between learners and mentor. This approach was in contrast to the communicative ethics view of Taylor (1998) which also suggested ways to set up a discursive environment where each recipient affects the other. Awareness of such issues can help 'frame' the dialogue used to communicate more efficiently and effectively. One had found these constructionist's metaphors powerful in thinking about internet-based tools to support learning, and it will help inform an individual in research . Particularly, the internet's strengths as a resource and for communication support Gergen' s advocation of problem-centered inter-disciplinary study and the problems of representation are also crucial in a low-bandwidth environment.

For one's learning, sticking together words about constructivism and reading the words using one's cognitive framework, developed through one's unique background and framework of language and its meaning. The researcher translating a variety of to build an understanding on one's background, then translating new understandings into building one's own text, which either deconstructing to reconstruct one's understanding and all these translations are introducing unknowns.

Constructivism was known to be post-epistemological, which means that it is not another epistemology, also it can't replace objectivism. Constructivism is an approach of thinking about Knowledge. Also it is the discipline of building models for teaching, learning and curriculum development according to Tobin and Tippin (1993). Constructivism is used as a sign in a theory of communication. For example in elearning we cant guarantee what was the receiver response of the message so we cant interpret the response

Online learning martials only , will cause problems, and accepting answers via emails are not enough to complete the process of communication for efficient learning.

Tenets of constructivism in pedagogical language suggested by Tippen (1993):

1. Learners come to class with an established world-view, formed by years of prior experience and learning.
2. Even as it evolves, a learner's world-view filters all experiences and affects their interpretation of observations.
3. For learners to change their world-view requires work.
4. Learners learn from each other as well as the educator.
5. Learners learn better by doing.
6. Allowing and creating opportunities for all to have a voice promotes the construction of new ideas.

In constructivist perspectives, it view learners as actively involved in meaning generation, and in teaching approach looks for what learners learn, analyze, investigate, share, build and generate information based on what they already know rather than what facts, skills, and processes they can tell. To do this efficiently and effectively, a professor needs to be a learner and a researcher so as to strive for valuable information through environmental scanning purposes and the participants in a given teaching situation in order to continually adjust their actions in engaging students learning, using constructivism . Despite the very fluid nature of constructivism and its many faces, one believes that attempting to understand it while simultaneously applying that understanding in a reflective manner, promotes the development of influential mental constructs that are useful in the pursuit of more effective communications to adopt e learning systems.

VI. CONCLUSION

The author found out that epistemologies would aid researcher to identify connections by determining series of steps in logical manner that helps one to connect theories with other body of knowledge.

Epistemology perceived largely to do with the discovering of consequences of specific

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knowledge. The outcome of epistemologies may result to mathematical or logical discourse and can be described as the important phenomena in order to solve the research problem and attain research objectives respectively . The epistemology position can be tested through research undertakings. The social science approach employed in previously had two kinds of epistemologies. Utilizing foundationalist and anti-foundationalist approaches, one can obtain valuable resource as used in the study of learners adoption towards e-learning systems . Theory connotes knowledge and the meaning that people attach to their experience. The subjectivity in analyzing research objectives done and in due course observing others doing in theorizing about the world is the essence of epistemology in a study. The emphasis was on understanding that knowledge and theorizing about it , means a significant shift of the study.

Critical Rationalism (foundationalist) and Social Constructionism(anti-foundationalist) approaches in the research undertaking have do with the exploration of the consequences of adopting some specific body of theory to rationalize position on the paradigm of research objectives. The resulting of theorizing became a sort of logical discourse as one undergo research undertakings. The social science research approach like in most business researches observe the two kinds of phenomena. On the study made reflected on the first work researcher gave more meaning based on the concepts as well as to the attached experience as stipulated in critical rationalism approach. However , the impact of epistemology on information technology as a study can be appreciated by e-learner on the point of view of social constructionism. Based on understanding of various theories relevant to a research problem , the researcher will be able to identify the cause and effect before theorizing it.

Having identified the appropriate epistemology , it is important to inquire what positive and negative implications to the study that may result of using on it. In learning research epistemologies both the foundationalist and anti-foundationalist (critical rationalism versus social constructivism), the choice of the certain model maximizes advantages that are most important to the research undertaking and minimizes disadvantages. Finally, when the researcher was able to validate functions of epistemologies on his study, he has able to reconcile the requirements of his research objectives. Validating the foundationalist and anti-foudationalist approaches through analyses of the previous assignment can be regarded as a valuable undertaking and self- liquidating experience for the researcher.

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