



TECHNOLOGICAL THEORIES: SUBSTANTIVE APPLICATION IN DEVELOPING UNIVERSITY-BASED ENTREPRENEURIAL ECOSYSTEM

Samuel Ogbara (PhD)^{1*}; Mr. Chinedu Chukwunwa²; Dr. Samuel Alade (PhD)³

Nnamdi Azikwe University, Awka.

*Corresponding Author
Samuel Ogbara (PhD)

Nnamdi Azikwe
University, Awka.

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Abstract: Decades of tremendous technological and sociological panacea being deployed by universities for the footing of an enabling entrepreneurial ecosystem have not assuaged the issues of poor technological perception in relation to the deployment of University-based entrepreneurial ecosystem. This article conceptually shows that entrepreneurial ecosystem is negatively positioned in the valley of technological adoption, attitudinally hindered from reaching the realm of technological adaptation. Therefore, this article objectively presents a conceptual explication of the mesh mechanism surrounding the complexities of student's entrepreneurial perception in relation to the role of ICT with the focal lens of Feenberg's technological theories. As a contingent struggle in Nigerian entrepreneurial context, the authors propose possible solutions to conceptually attenuate poor technopreneurial perception within University-based entrepreneurial ecosystem through qualitatively developed substantive theory, enhancing the development of a technologically inclined system for entrepreneurial enhancement.

Keywords: Constructivism, Instrumentalism, Value-laden, University-Based entrepreneurial ecosystem.

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1.0 Introduction

Researchers have delved into the labyrinth of university characteristics relative to U-BEE, though with mixed conclusions (Rothaermel, Agung and Jiang, 2007; Astebro, Bazzazian and Braguinsky, 2012; Smith and Bagchi-Sen, 2012; Isenberg, 2014). McCalla (2004) posited a plethora of pedagogic possibilities of an ecological approach in the re-definition of institutional ecosystem, which argues for the mediation of pedagogic models, ultimately efficacious at improving student's technological quests in U-BEE.

In contemporary university ambience, some argue that institutional characteristics should not be the only yardstick to ascertain entrepreneurial possibilities or that the focal lens of entrepreneurial studies should not only revolve around the circumference of unique characteristics of entrepreneurs (Isenberg, 2014), however, there has been some empirical proofs validating technological possibilities as annexed to institutions and opportunities, marshaled for the enhancing of U-BEE development (Shane and Venkataraman, 2000; Shane, 2003), thus maintaining, as far as possible, the positive intersection of institutional characteristics and technological inclination among undergraduates in U-BEE.

Therefore, this article employs the lens of Finberg's theory to provide answers to the following questions: (i) Privateer (1999) argued that could the prevalent technological dilemma existing among graduate help or hinder technological promise? Attitudinal

constraints have been one of the main clogs hindering U-BEE from focusing on moving from the threshold of technological adoption to adaptation (Norris, Eyt-Dessus and Holtham, 2013), (ii) could we assert empirically assert that U-BEE is intelligently navigating the ever changing digital terrains in the context of Moore's law? (iii) Is U-BEE rightly maximizing the potentials inherent in Finberg's technological theory as posited by Mlitwa (2005) and Ekundayo (2013)? Jenner (2013) loudly stated that technological gesture is not well woven into the fabrics of most U-BEE. Mlitwa (2005) admits in conjunction with other critical theorists about the danger in technology 'praise-singing' that is quite oblivious of notable U-BEE accomplishment. Innovations is often the prerogative of few U-BEE, and mostly without technological and entrepreneurial challenge, therefore, there is need for an explanation, at least an explication of Finberg's technological framework which could lend some propositions for empirical research.

In relation to the conspicuous attitudinal constraints mitigating U-BEE due to technological misconception, the researchers resolves to explicate these complexities with Andrew Feenberg's (2006) technological framework.

2.0 Explicating U-Bee Using Feenberg's Technological Theory

There is a growing body of scholarly literatures that ascertain a positive relationship between technological perception and entrepreneurial adoption (Steffensen, Rogers and Speakman,

2007; Mlitwa, 2005), which invariably influences U-BEE. Czerniewicz, Ravjee, and Mlitwa (2005) confirm the notional divisions that exist among entrepreneurial actors, academics, and policy makers regarding the position and use of technology in U-BEE.

The authors, having had decades of teaching experience in conjunction with the studious perusal of the works of Feenberg (1991, 2004 and 2006) as regards technological theories, notices a transitive relationship between entrepreneur's technological orientation and entrepreneurial action. The bulk of what has been set forth in the theoretical deliberations of Feenberg on technology has intrinsic influence on entrepreneurial perception in developing U-BEE.

The explication of this theory in the light of present entrepreneurial realities, results in a futuristic substantive framework that could be researched empirically to dispel possible technological illusion inherent in entrepreneurial activities. Decades ago, the Marxist's formula for the anticipation and realization of the inevitable is advancement in technology. This axiomatic declaration that advancement in technology shoulders every other advancement, past or present, is one of the premises upon which this chapter is grounded, though the author conceptually disagrees with this notion in relation to the development of U-BEE in developing countries.

Therefore, if entrepreneurial actors are thus divided, we need not wonder if some countries in the developing nations retain some good measure of technological illusions in the midst of numerous technological inventions and innovations. The overarching contribution of Feenberg's theory is the assertion and demonstration of the prerogative and proximity of entrepreneur's perception over their technological adaption curve. Therefore, the use of Feenberg's four perceptive pegs concertedly collaborates the explication of the entrepreneur's technological perception in relation to U-BEE development, and has lend cadence on the establishment of the argument in this research, drilling down to the necessity of a technologically inclined entrepreneurial management system, developed substantively for the evaluation and prediction of entrepreneurial readiness index with institutional heuristics.

Feenberg's technological theory provides an explanation for U-BEE perception prevalent amongst Nigerian entrepreneurial context. Feenberg (2006) studied Kuhn's (1962) anthropological deliberations in relation to technology to establish a framework for the analysis of technological perception. In his views, technological users are:

- Neutral and Autonomous (Determinist)
- Neutral and Human Controlled (Instrumentalist)
- Autonomous and Value-Laden (Substantivist)
- Human Controlled and Value-Laden (Critical perspective).

Table 1. Andrew Feenberg (2006) Technological Theory

TECHNOLOGICAL ROLE:	<i>Autonomous</i>	<i>Humanly Controlled</i>
<u>Neutral</u> (complete separation of means and ends)	<u>Determinism</u> (e.g. modernization theory)	<u>Instrumentalism</u> (liberal faith in progress)
<u>Value-laden</u> (means form a way of life that includes ends)	<u>Substantivism</u> (means and ends linked in systems)	<u>Critical Theory</u> (choice of alternative means-ends systems)

2.1 Determinism (Neutral + Autonomous)

Table 1 shows the intersection of Neutral and Autonomous results in what Feenberg terms Determinism. In U-BEE, entrepreneurs who espouse determinism believe that technological activities are not humanly controlled, rather, they believe that it has some immanent laws which must be perceptibly or imperceptibly adhered to, with a subsuming tendency of their being. Some students entertain innate idea that technological possibilities reside outside the purview of University-based Entrepreneurial Ecosystem (U-BEE). Determinists, according to Feenberg (2006) believe in the triumph of technological activities over values and life itself, and, are willing to sacrifice, if possible, values for advancement. Entrepreneurs under this category have tendency to be unduly task-oriented and with little or no regard for human feelings.

The usual argument is that technological achievement is a dynamo that empowers universal development, but the undermining effects or the seeming downside of it are less considered (Achimugu, Oluwagbemi and Oluwaranti, 2010), while entrepreneurial

determinists assert that technology is encoded in genes and with little or no training, this assertion lacks empirical support.

The result of adapting to the sole innate influence of technology creates an atmosphere of pessimism with little or no U-BEE progress. Feenberg (2006) confirm that technological determinist intrinsically peddle around the notion of a technocratic expression of our humanity without historic precedence, the same could be said about technological determinist. Uncritical constructivists often side determinists to affirm inherent transcendency and the possibilities of evolution without a technical actor.

Martin Heidegger, the famed Substantivist theorist recognized the illusion inherent in transcendence by linking the feedback loops to a human actor (Heidegger, 1953). Some of the famous determinists effervescently pleads for the significance of technology as regards entrepreneurial progress (Achimugu, Oluwagbemi and Oluwaranti, 2010; Ani, 2010; Leach, Scoones and Stirling, 2010). There is need for further study as regards entrepreneur's technological orientation.

2.1.1 Concise Critique of Determinism Relative to U-Bee Development

One of the major effects of determinism on U-BEE is to develop entrepreneurs and graduate entrepreneur who solely determines entrepreneurial success imbibing the notion of overt-technological reliance, as the root of existence and sustenance, cardinally undermining human intelligence and capability. Another common calamity of this view is that the employability rating of determinist and total usefulness is questionable as well as doubtful (Feenberg, 2006). Espousals of this view could recourse to utopist's idealism, thus hindering the process of U-BEE development.

2.2 Substantivism (Value-Laden + Autonomous)

From Fig. 1, the intersection of Value-laden and Autonomous results in what Feenberg terms Substantivism. Substantivists entrepreneur accept that technological activities are not humanly controlled, rather, they are value-laden and autonomous (Mlitwa, 2007). This view attaches a substantive value to technological activities and the vivid capability of technological autonomy is often seen as threatening and malevolent (Feenberg, 2006). Therefore, beyond the subsuming of lifestyle, it prompts a formal subscription to an entirely different way of life, religiously requisite of both perceptible and imperceptible consent.

The authors, in their intercontinental experiences, notice that entrepreneurial substantivists are growing beyond a healthy proportion. As such, there exist technological propensities of modern societies with little or no clear interpretation of societal values. Majority espouse this view being pecuniary motivated and others have deep imperialistic agenda, from the authors' observation. Huxley, delved deeply into the labyrinth of substantivism in his famed book, *Brave New World*, he asserts that technology as well as entrepreneurship could overwrite humanity, or perhaps reduce man to a hub in the machinery wheel of universal progress (Huxley, 1932).

McLuhan (1961) foresees that people as well as students would definitely be wary of this overt utopism, the idea of a dystopic realization of true existence with a complete cancellation of our individuality, thus making humanity an organ in cosmic organism. There is clear need to review some of the tenets of entrepreneurial substantivists today in relation to the development of UBEE.

2.2.1 Concise Critique of Substantivism Relative to U-Bee Development

Ungirded utopism remains one of the major effects of Substantivism on U-BEE. Entrepreneurial substantivists would perhaps back-out when technological road becomes tough. Entrepreneurs of such persuasions easily flag and waver in their path to becoming entrepreneurs and file in as employee in the face of entrepreneurial adversity. If this issue is not addressed, if students substantively waver in the face of challenges, which are cardinally inevitable, the likes of Mark Zukerberg and other youthful billionaires could fizzle out of the globe.

Essentially, modernists believe such entrepreneurs, if ever they arrive at the platform of entrepreneurial leadership, would be overtly laissez-faire in their intervention and would cause the decline of U-BEE development. Critics of Substantivism have had

to state that the underpinning cause of this view is intrinsic or unconfessed technophobia. Weil and Rosen (1995) explained that technophobia issue is psychologically enmeshed into the genomes of such entrepreneurs, and there is need of a psychological panacea for adjustment.

Despite the incessant weakness inherent in this viewpoint, developing nations attach some significant to technological ignorance as one of the bliss of existence, thereby, nips the bud of U-BEE development in the research location, therefore, necessitating the need for massive awareness about the inherent value in technology for the transformation of entrepreneurial ideas into economic values.

2.3 Instrumentalism (Neutral + Humanly Controlled)

This view represents the idea of modernists today. Entrepreneurs hold this view believe that technological activity is neither substantive nor deterministic. Leaning and Watson (2006) emphasize that it is merely a tool, substantially subservient to human purposes. They further posited that instrumentalists deny the socio-technical concerns of technology, thereby assuming a neutral stance, arguably connoting advancement in empirical research (Leaning and Watson, 2006). Entrepreneurs who espouse this view considers technology as a neutral tool and is not value-laden, and could be manipulated and subjected by humans for promoting entrepreneurial aim in U-BEE. However, Finberg (2006) observes that this position is intrinsically subjective and the development and deployment of technology without passing the criteria of due democratization could affect economic goal, and, in line with Finberg's (2006) argument, the author hereby raises concern that prior to the deployment of any developed technology, entrepreneurs who are instrumentalists should cardinally examine the entrepreneurial motives of U-BEE prior deployment.

Certain technologies that does not consider the U-BEE context would hinder rather than help the U-BEE developmental plan, especially in developing countries, where entrepreneurial phenomena has no clear boundaries and causal depth. Moreover, entrepreneurs who are instrumentalist belief that technology is not self-capable of entrepreneurialism but the mode of usage, which is solely and fully at the disposal of the entrepreneur, however, the tendency to ignore the socio-technical consequences of technology is high. Despite the caution and proclivity to ignore the socio-technical implications of technology by entrepreneurs who are instrumentalists, this view has immense scholarly advocates in Nigeria (Ajayi, 2008; Okewale and Adetimirin, 2023).

2.3.1 Concise Critique Ofinstrumentalism Relative to U-Bee Development

Finberg's (2006) caution is worth consideration by instrumentalists, and the debate about the socio-technical effects of technology have cardinally affected both developed and developing nations. The effects of instrumentalism on the ambience of U-BEE, could help or hinder the development of U-BEE. While instrumentalists opines that profound entrepreneurial possibilities lies in the ambit of technologies, yet the practicality of this has been difficult in several U-BEE ambience, especially in the research location, who seems to be overtly technocentric. Therefore, technological adoption is not directly proportional to U-BEE development nor proportional to advancement in

entrepreneurial productivity, though remains an integral element of its constitution.

2.4 Critical Theory (Value-Laden+ Humanly Controlled)

Critical theorists hold a milder posture that technological activity is actually value laden yet could be humanly controlled (Finberg, 2006). Critical theorists simultaneously opines with substantivists and determinists about the substantive nature of technological mechanism (Mlitwa, 2007). Entrepreneurs who hold this view fare better because of the constant subjection of their entrepreneurial activities to democratization processes.

Critical theory recognizes the catastrophic outcome of overt technocratizing as highlighted by substantivism but still perceives a promise of greater freedom in technology (Feenberg, 2006). Entrepreneurial leaders in U-BEE need to ensure a better democratization process for enhanced technopreneurial perception and entrepreneurs who operate under a democratically controlled ambience could arguably change the world.

Critical theorists opine that technologies as well as entrepreneurial activities pose no challenge to universal healthiness though the world is yet to arrive at an equitable democratization process of plausible entrepreneurial endeavors for the facilitation of U-BEE in most developing nations (Watson, 2001). He further indicates that some of the actors within U-BEE are both threatened by change, and conversely not impressed by it, however, Critical theorists never overrule the possibilities and potentials of technocentric capabilities for economic transformation.

The cardinal contribution of this view is the acceptance of the possibility of democratization of the technological process in favour of U-BEE development. Feenberg (2006) and other critical theorists share similar opinion, they unanimously alluded to history and discovered that economy as well as technological endeavor are subject to democratic control. Therefore, the inherent autonomous power in technology as argued by substantivists is currently questionable, therefore, the instituting of a proper democratic forum would be a plausible solution.

Critical theorists, contrary to the expostulation of Heidegger, recourse to the old saying that 'Heaven help those who help themselves', which implies that technological activities is within the purview of our human control, and through democratic intervention, we can attenuate this issue (Feenberg, 2006).

2.4.1 Concise Critique of Critical Theory Relative to U-Bee Development

Critical theory posits a conservative view, it is a plausible threshold whereby entrepreneurs could navigate entrepreneurial terrain without much ado. It incites positively the need for caution and courtesy. The adverse effect of this view on U-BEE development is that the needed democratic platform, that is, the appropriate institution for effective control and censures of weird technological development, may not surface the sooner (Finberg, 2006). And, it could lead to another perspective. Entrepreneurs under this domain may tend to assume another position in the face of poor platform.

3.0 Implication of Feenberg's Theory in Nigeria

The implications of this study in the study ambience are enumerated thus: (i) This study introduces and delves into the concept of entrepreneurship theoretically and historically, and its varied evolutionary stages in relation to university-based entrepreneurial ecosystem formation. The overt misunderstanding of the theoretical proposition inherent in the historical purview of entrepreneurship has substantially established that entrepreneurship is a comprehensive and complex phenomenon. (ii) Triadic approach comprising of the Economic approach, the Psychological approach and the Sociological approach often used for the explication of entrepreneurial essence has yielded little result in the study ambience, (iii) The comprehensive study of entrepreneurial approach builds genuine entrepreneurial interest, and has proven to be the harbingers of economic productivities, employment creation, and improvement of living standard, (iv) Feenberg's technological theory helps to redefine and retrace the major milestones and contribution inherent in entrepreneurial theoretical journey historically and chronologically, and the comprehension of these milestones enhances the research process in the field, and the researcher has given due attention to these conceptualization in relation to developing university-based entrepreneurial ecosystem.

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