Social Capital development amongst college and university students in online and classroom education

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Abstract—Social capital is linked to academic performance and education satisfaction, and also forms the foundation of students' future business networks. It is postulated that social capital development amongst college and university students is influenced by education delivery modes in the form of online and classroom education. The Covid-19 pandemic that started in March 2020 and subsequent prolonged periods of physical lockdowns in many countries has forced colleges and universities that customarily practice classroom education to shift to online education temporarily. This situation has created a "natural experiment" whereby classes or programs from the same college or university that were previously conducted in classrooms (in-person) are now conducted online. There are three (3) objectives of this research. First objective is to investigate and determine the social capital development of students in online education. Second objective is to analyse the influence of social capital on students' academic success and education satisfaction. Third objective is to generate and propose policies to foster social capital development. A quantitative research approach is employed and the respondent pool comprises students from colleges and universities in Malaysia. The data gathering instrument is an online questionnaire administered with the informed consent of participants. Approximately 300 participants is targeted, which exceeds the statistical minimum requirement of 166 participants. This enhanced respondent pool will further strengthen the accuracy, validity and robustness of the data analysis, findings and recommendations. The variables include Family Capital, Faculty Capital, Peer Capital, Academic Performance and Education Satisfaction. The data will be analyzed with appropriate statistical tools such as structural equation modeling (SEM). The anticipated findings are envisaged to generate policies on promoting social capital development among students in colleges and universities internationally.

Index Terms—Social capital, academic performance, education satisfaction, online education, classroom education.

I. Introduction

The concept of social capital has its roots amongst the ancient Greek philosophers with the legendary Aristotle proclaiming that we humans are "social animals". In social science, the idea of social capital resides in the field of sociology, but has expanded into the fields of political science, public policy, business and economics. The founding fathers of sociology, Tonnies, Weber, and Durkheim, defined social capital in terms of the individual's place in society, social relations, and social order [1]. There are variations in contemporary definitions and one commonly used is "stocks of social trust, norms, and networks that people can draw upon in order to solve common problems" [2]. In this definition, social capital is derived from relationships among individuals, and are formed, developed and nurtured from daily interactions and experiences. Social capital influences academic performance and career advancement, and in the context of the latter, the component of networking is central. Networking points towards to goal-directed behavior such as building and cultivating informal relationships to obtain career and material benefits [3]. Among students, the basis of their future career and business networks rests on their cultivation of social capital during their studies [4]. Social capital and business networks are crucial for workplace readiness, particularly for business students [5, 6].

Social capital amongst college and university students provides current and future benefits. The current benefits are its links with academic performance and education satisfaction [7, 8]. The presence of social capital, reflected in friendships and good relationships with faculty and others, is conducive for peer learning, informal learning, socialization and personal satisfaction [9]. The future benefit is its development into business networks when the student graduates and enters the working world. Business networks or relationships with commercial benefits play an important role in career and business success as it enables information exchange, knowledge access and resource optimization [10, 11].

It is postulated that social capital development amongst college and university students is influenced by education delivery modes in the form of online or classroom education, and this forms the focus of this research. Online education is defined as education primarily conducted via "the use of information and communication technologies to deliver educational opportunities to a student in a location other than a school" [12]. Classroom education is defined as education primarily conducted in a traditional, physical classroom where "one or more students are in a setting in which either an instructor is physically present with the students or a representative of an approved school is physically present with the students [13]. Apart from differences in education delivery mode, the physical and social context also differs as in online education students are based at home, and in classroom education students are based at college or university campuses. These different modes of education delivery are not mutually exclusive. Students in online education might be required to physically attend some practical classes or tutorials, and correspondingly, students of classroom education might be required to attend some online lectures and workshops. Nonetheless, the education delivery mode of academic programs can be distinguished as predominantly online or classroom.

The Covid-19 pandemic that started in March 2022 and subsequent prolonged periods of lockdowns or movement control order (MCO) as is known in Malaysia has forced colleges and universities that customarily practice classroom education to shift to online education temporarily. This situation has created a "natural experiment" whereby classes or programs from the same college or university that were previously conducted in classrooms (in-person) are now conducted online. In other words, the variables of institution (colleges or universities) and student cohort (the same colleges or universities attract the same student cohorts) are kept relatively constant with the only difference being the education delivery mode. This situation differs from comparing different colleges or universities that practices different education modes. In different colleges or universities, their programs and student cohorts are different making direct comparisons difficult.

The importance of social capital is well-established but to the authors' knowledge there is no research that specifically compares student social capital between online and classroom education delivery modes of the same college or university. The Covid-19 pandemic and lockdown or movement control order provides a rare opportunity to investigate the effects of online and classroom education towards student social capital with other variables such as education institution, academic program, student cohort and teaching faculty kept constant. Appropriate policy recommendations can then be derived from the envisaged findings to foster social capital development amongst students.

II. LITERATURE REVIEW

The notion of social capital has long historical roots with legendary Greek philosopher Aristotle proclaiming that "man is by nature a social animal" [14] (author's note: what Aristotle meant by 'man' probably included men and women who are free as opposed to slaves who were not considered human in ancient Greek society). "Capital" is something that has value to people and other forms include economic and human capital. Social capital resides in one's relationships with other people, as compared with economic capital that resides in monetary and material assets, and human capital that resides in knowledge and intellect. Social Capital Theory asserts the existence and importance of social capital defined as "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition." [15]. Social capital can be developed, accumulated, transmitted and converted to other types of capital [16].

In the industrial economy, the traditional factors of production are land, capital and labour. We are currently in the post-industrial, knowledge-based economy, and the factors of production have changed to intellectual capital, social capital and creative capital [17]. Social capital, as developed into networking, relationship formation and information accessibility, is an important success factor in career, business and personal development [10, 11, 18]. In the context of business, social capital forms the basis of business networks that is crucial for business development and personal growth [18, 19]. Among the benefits of business networks are shared knowledge, opportunities, connections, increased confidence and raised profile [9, 20].

The literature on social capital is wide as social capital is a sociological construct that can be applied in various contexts such as business [21, 22], healthcare [23, 24] environmental conservation [1], corporate social responsibility [25], poverty-alleviation [26, 27, 28], nation-building [29], crowdfunding [30] and others. In the context of students, social capital provides current benefits as it supports academic success as students leverage upon it for peer learning and guidance [31, 7, 8], and also future benefits as it plays an important role in career and business success [10, 11, 18]. Social capital among students is further categorized into family capital, peer capital and faculty capital [32, 33].

Family capital is defined as the accumulation of family "capitals" that arise in family interactions [34]. When applied towards education, family capital leads to intrinsically motivated learning, better educational outcomes and better incomes [33, 35, 36]. Access to family capital is linked to the educational qualification of parents [37], and parents' educational qualification is correlated with higher education enrolment and completion of their children [38, 39, 40]. Families are the primary source of financial support for students [41], and when there is adequate financial support, students typically have more focus on their studies leading to better academic performance [32, 36, 42, 43, 44].

Peer capital reside in the bonding ties of friendships. The physical layout and teaching environment at university customarily promotes peer capital formation [32]. Living together in on-campus dormitories and residence halls encourages formation of close and long-lasting friendships. Various on-campus student clubs, societies, sports teams and other organizations further promote socialization and interaction [45]. As a result, friendships which provide both information-related social capital and social support are developed, particularly for full-time students living on-campus

[33]. Studying together with peers enhances performance [46, 47], increases understanding of the academic content [49], reduces examination related anxiety [49] and overall results in better outcomes [31, 50]. Peer capital also influences students' social adjustment to a university [51, 52, 53, 54], and this also contributes to academic success [31, 55, 56, 57].

Faculty capital for students reside in the support they receive from faculty and staff. This support comes in various forms which includes advice to students, information sharing, academic feedback, career guidance and personal motivation [32, 58]. A positive relationship between faculty capital and academic success is shown in the majority of studies [9, 56, 59, 60, 61], with some showing otherwise [55].

Social capital in students is also linked to education satisfaction. Education satisfaction comprises both extrinsic and intrinsic components. Extrinsic components are related to academic achievement and career success, and intrinsic components are related to personal satisfaction and well-being. Current organizational research has indicated that education satisfaction is correlated with career success [62, 63, 64, 65, 66, 67, 68, 69].

Student satisfaction is influenced by the following key factors - interaction among students, interaction between student and instructor, and interaction between student and academic material [70]. Interaction is mediated by the education delivery mode. The majority of current studies explored student satisfaction in online and classroom education in different institutions or different academic programs within an institution. Direct comparisons are difficult as many other factors such as institution type, academic program and student cohort influence student satisfaction. A notable exception is a research by Reference [71] whose findings indicate that while student satisfaction was high for both online and classroom education, students in the online course were less satisfied with eight (8) criteria related to student satisfaction with instructor rapport, course excellence, peer interaction, and self-perceived knowledge gains. The students in that study had a choice of selecting online or classroom education delivery modes, this current research differs in that students and instructors do not have a choice during the Covid-19 pandemic.
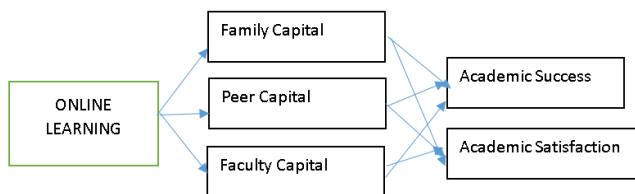
III. METHODOLOGY

Fig. 1 Theoretical Framework

With reference to the theoretical framework above (Fig. 1), the methodology employs a mono method quantitative survey. This explanatory research will be hypothesizing and testing the cause-effect relationship [72] between social capital development and academic achievement. Target population and the unit analysis of the research is individual stu-

dents from certificate to degree level in four (4) private colleges and universities in Malaysia. The minimum requirement of sample size is 166 by calculating through the priori power analysis as suggested by Reference [73] and [74] using G*Power 3.1 program which is designed to efficiently determine an appropriate and valid sample size for statistical tests that are powered for biomedical science, behavioural and social study. The study will deploy a judgmental and snowball sampling method for the questionnaire [75] and use a cross sectional time horizon method for data collection. A Google form [76] is created and its link shared and emailed to students. All the survey questions are adopted or adapted from prior studies with proven validity and reliability. The construct instrument validity of family capital, peer capital, faculty capital, and academic achievement are designed based on past research [41, 77, 78, 79]. The questionnaire consists of 6 sections; Section 1: Introduction and Consent, Section 2: Background Information, Section 3: Family Capital, Section 4: Faculty Capital, Section 5: Peer Capital and Section 6: Academic Performance and Satisfaction. Sections 3 to 6 uses a Likert Scale consisting of a 5 points range, with 1 point for "strongly disagree" to 5 points for "strongly agree".

This study will employ a mixture of Statistical Package for Social Science (SPSS) version 26 [80] for descriptive analysis on the distribution of data and Smart PLS (Partial Least Square) version 3.0 [81] for multivariate statistical analysis in identifying relationship between measured variables and the latent construct. A measurement model will be used to assess the adequacy of the collected data in the first stage of building process of the model as recommended by Reference [82]. Three elements will be examined under this model which are reliability, convergent validity and discriminant validity [83].

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