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STUDENT PERCEPTION TOWARDS THE EFFECTIVENESS OF INSTRUCTIONAL STRATEGIES FOR ONLINE LEARNING IN SULTAN IDRIS UNIVERSITY OF EDUCATION (UPSI)

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DECLARATION

I hereby declare that the work in this dissertation is my own except for quotations and summaries which have been duly acknowledged.

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ABSTRAK

Berlandaskan Tujuh Prinsip bagi Amalan yang Baik untuk Pendidikan Peringkat Sarjana Muda, penyelidikan ini mengutarakan kerangka theoretikal yang mungkin dapat membantu menzahirkan pembelajaran atas talian. Masalah utama yang menjadi fokus kajian ini ialah sama ada pelajar peringkat sarjana muda di Universiti Pendidikan Sultan Idris (UPSI) tahu tentang Tujuh Prinsip ini dan apakah implikasinya. Sampel seramai 397 partisipan telah berjaya diperolehi. Dapatan kajian menunjukkan bahawa tahap kesedaran pelajar terhadap Tujuh Prinsip tidak bersandar dengan pembolehubah bilangan semester di universiti dan afiliasi dengan fakulti. Di samping itu, tahap penggunaan teknologi komunikasi seperti telefon dan pesanan ringkas (SMS), emel, forum dan bahan pembelajaran atas talian oleh tenaga pengajar juga tidak bersandar dengan pembolehubah tahap kesedaran pelajar. Dengan menggunakan ujian ANOVA sehala antara kumpulan, didapati bahawa terdapat perbezaan yang signifikan antara persepsi pelajar dari kumpulan semester lima, enam dan tujuh terhadap keberkesanan strategi instruksional untuk pembelajaran atas talian. Ujian post-hoc Tukey's HSD menunjukkan perbezaan persepsi di kalangan pelajar semester tujuh adalah lebih tinggi berbanding dengan pelajar dari semester enam dan semester lima. Ujian ANOVA sehala antara kumpulan juga telah dilakukan untuk pelajar dari berlainan fakulti. Dapatan ujian menunjukkan bahawa terdapat perbezaan yang signifikan antara persepsi pelajar dari berlainan fakulti. Ujian post-hoc Tukey's HSD menunjukkan perbezaan persepsi di kalangan pelajar dari Fakulti Bahasa adalah lebih tinggi, berbanding dengan pelajar Fakulti Teknologi Maklumat dan Komunikasi, di ikuti pelajar Fakulti Sains dan Teknologi, Fakulti Sains Sosial dan Kemanusiaan, dan Fakulti Sains Kognitif dan Pembangunan Manusia. Akhir sekali, analisis faktor eksplorasi telah dijalankan. Ini untuk mengesahkan struktur konstruk kerangka theoretikal yang jika digunakan sebagai strategi instruksional, mungkin dapat menzahirkan pembelajaran atas talian. Dapatan kajian menunjukkan bahawa memang terdapat Tujuh Prinsip di mana kesemuanya mempunyai nilai 'eigen' yang lebih besar dari 1. Analisis lanjutan yang dilakukan terhadap komponen matrik yang diputar menunjukkan bahawa dari 34 item yang digunakan, 23 adalah pembolehubah tulen dan lagi 11 adalah pembolehubah rumit.

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ABSTRACT

Based on the Seven Principles for Good Practice in Undergraduate Education, this research attempted to put forth a theoretical framework that might facilitate the manifestation of online learning. The central problem that was the focus of the research was to determine whether undergraduate students in *Sultan Idris University of Education* (UPSI) are aware of the Seven Principles and subsequently its implications. A sample of 397 participants was successfully obtained. Findings indicated that student awareness of the Seven Principles was independent or not related to variables such as the number of semesters they had experienced online learning and faculty affiliation. Additionally, the utilization level of communicative technology such as telephone and text messaging (SMS), email, forum, and online resources such as materials by teaching staff was also independent or not related to the variable of student awareness. A test using One-way between groups ANOVA revealed significant differences between student perception towards the effectiveness of instructional strategies for online learning among fifth, sixth and seventh semester students. A post-hoc analyses using Tukey's HSD indicated that the average perception among students was higher for seventh semester students, followed by sixth and fifth semester students. A second test using One-way between groups ANOVA revealed significant differences between the perception of students from different faculties. A post-hoc analyses using Tukey's HSD indicated that the average perception of students' from the Language Faculty was highest, followed by students from the Information Technology and Communication Faculty, Science and Technology Faculty, Social Science and Humanities Faculty and, Cognitive Sciences and Human Development Faculty. Lastly, an exploratory factor analysis was conducted. This was to verify the validity of the intangible constructs that constitute the theoretical framework that if used as instructional strategies, might facilitate the manifestation of online learning. Findings revealed that there are indeed Seven Principles with all of them having eigenvalues greater than 1. Further analysis of the rotated component matrix revealed that of the 34 items used, 23 were pure variables, while the remaining 11 were complex variables.

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CHAPTER 1

INTRODUCTION

1.1 Introducing the Research

For the past century, the world that we live in has had to change dramatically and rapidly. In very much the same manner as to how discoveries and inventions fuelled the Industrial Revolution a new revolution has begun. The catalyst for this new revolution is technology, to be more precise the invention of the microprocessor that is used in today's personal computer (PC), and the extended applications of the Internet.

During the 1950's super computers took up entire floors and were astronomically expensive. During the 1970's mainframes became smaller but were still relatively expensive. By 1979, microcomputers were developed and thus began the age of personal computing. Now twenty-six years later, laptop computers are much more powerful, portable and cheaper than the super computers and mainframes of yesteryears.

In 1969, ARPANET (Advanced Research Project Agency Network) was developed for military, scientific and research purposes. After thirty-six years ARPANET has evolved into a global network known as the Internet. During the early 1980's only a few hundred were connected to the Internet. But in 1993 when Marc Andreessen released MOSIAC, the first ever point-and-click graphical user interface (GUI) for the Internet, nothing would ever be the same again (McCain & Jukes, 2001).

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The impact of PCs and the Internet on our daily lives has been without a doubt significant. The bold claim made by the American Institute for Higher Education Policy that "not since the printing press was invented by Johann Gutenberg in the 15th century has an 'invention' generated so much potential to dramatically change how people communicate, interact" and share information with one another is substantiated (Bullen, 2001). In very much the same vein, "technology is an Information Age teaching tool" (Lever-Duffy, McDonald & Mizell, 2003).

Although for the record, in a Discovery Channel program it was pointed out that the first printing press was actually invented by the Chinese in the 8th century. Johann Gutenberg's printing press arrived 700 years later in the 15th century (What the Ancients Knew, 2006).

Predictions about paradigm shifts in the way educators will conceptualize and deliver education to learners were quick to be made. However, having access and being able to cope with technology are two different things, what more to make it all work. To the unprepared change either becomes uncomfortable or disorientating. Shying away from change and going back to their tried and tested ways is the only alternative for those who are unprepared. If change were to be forced, then most of them would choose the easy way-out i.e. the path of least resistance (McCain et al., 2001).

As a result, the acceptance of computers and the applicability of the Internet in the field of education appear to be in a state of paradigm paralysis. Educators are struggling for answers to simple questions like why and how should computers and the Internet be used. Therefore, "research is needed to better assist students [and teaching staff] in using this electronic medium for their academic success" (Yixin,

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2003). Compared to our counterparts from the military and business world for example, we in the field of education are "laggards" (Morrison, Ross & Kemp, 2001).

According to the interpretation of McCain et al., (2001), "paradigm is a model, perspective, value system, frame of reference, or worldview that guides one's actions. Paradigm governs almost everything that we do and everything we think." When in a state of paralysis the unprepared do not think, they just react. Most often their knee-jerk reaction is to hang on to what is customary and secure since it is only human nature to do so.

Hence the need to change current paradigm, or in layman's terms the mind-set about how the teaching and learning experience has always been to what it needs to be. This is due to the fact that modern society is becoming more and more reliant on complex technological infrastructure to create, process and distribute information.

For that reason, society requires that its workforce be properly trained. Sixty-five percent of the worth while professional and clerical jobs currently being sought after are those that deal with information and its diffusion, for example teachers, accountants, bankers, bureaucrats, clerks, programmers, insurance people, lawyers, managers, secretaries, stock brokers, technicians and many others (Naisbitt, 1984).

This demand for competent knowledge workers can only be supplied by the education sector. Education is the pillar of modern society. Therein, lays the dilemma. How does education assimilate with technology? Is it merely a set of circumstances that requires the incessant purchase, installation and upgrading of computer related infrastructure and paraphernalia? To use an analogy; is education fated to transmute into some sort of cybernetic organism evocative of the Borg from Star Trek?

Questions regarding the practicality and acceptance of computers and the Internet in the field of education have already been partly answered in John Naisbitt's

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book entitled *Megatrends; Ten New Directions Transforming Our Lives* (1982) and Everett Roger's *Theory of Diffusion and Adoption* (1983). The Naisbitt Group used an intelligence gathering technique employed during World War II to monitor public behavior and social change. By utilizing the technique of content analysis to gather data they were able to synthesize what was happening in society and forecast what might be future trends or single out pointless fads.

Consequently, Naisbitt (1982), and his group were able to identify and predict that computers would firstly, "offer a cost effective albeit capital-intensive way of individualizing education." Secondly, "computers simplified the extensive recordkeeping required for individualized instruction." And thirdly, "familiarity with computers is now considered a strong vocational advantage, [or in other words] a salable skill."

In addition, Naisbitt (1982), and company were also able to come up with *The Three Stages of Technological Development*. Firstly, new technology or innovations would follow the route of least resistance. Basically, this meant that technology would be applied in ways that did not intimidate people or threaten their jobs. Secondly, technology would be used to improve previous technologies. For example, how the typewriter has been replaced by the computer or how digital cameras are gradually replacing cameras that use film. Lastly there is the discovery of innovative directions or applications that are developed from the technology itself, which according to Naisbitt has yet to occur. Nevertheless, when considered in the context of current literature, is probably happening as you read this, case in point, the Internet and its many spin-offs.

Meanwhile, Roger's Theory of Diffusion and Adoption suggested that there are many reasons to explain why an innovation may or may not be accepted. For

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example, there are factors such as the advantages of the innovation, the compatibility of values, needs and experiences, innovation complexity, ability to try the innovation, communicating information about the innovation as well as the social system; the influence of networks and relationships (Morrison et al., 2001). Though, within the context of this research it was hypothesized that a deficit in the observability of results best explains why great doubt still exists regarding the effectiveness of online instruction. Or in simpler terms, how online instruction manifests itself so that educators will know exactly what to do, how to do so and where to look for tell-tale signs of whether they are succeeding or are failing.

Additionally, Rogers also classified those who adopt technology into five categories. Firstly, there are the first adopters who rush out to adopt innovations as soon as possible, sometimes even going after prototypes or test versions. Secondly, there are the early adopters who adopt an innovation as soon as a 'commercial' version is available. Thirdly, there are the early majority adopters who comprise the first fifty percent to adopt an innovation. Fourthly, there are the late majority adopters who adopt an innovation only after it seems 'safe.' And lastly, there are the laggards who are the last to adopt an innovation or sometimes completely fail to do so (Morrison et al., 2001).

1.2 Research Background

With regards to how the teaching and learning experience would be effected, many educators and learners alike were initially guilty of thinking that online instruction, or generally referred to in Malaysia as online learning, would be a simple task of going through prescribed content followed by an automated evaluation of

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learning, based on set responses. This sounds very much like behaviorism and could possibly be a textbook example of operant conditioning i.e. stimulus and response. For low proficiency students, drilling is often the only teaching approach that would guarantee some measure of success.

Fortunately, this is not the only way online learning works. It is also about satisfying the high proficiency student's hunger for knowledge, for which the motivation is intrinsic rather than extrinsic. However, if there is a lack of motivation then learning would only occur at a superficial level.

That is why online learning can also cater to constructivism. Constructivism believes that learning is an active process and does not happen in a vacuum. Knowledge is the result of learning and "knowledge is unique to the individual who constructs it" (Lever-Duffy et al., 2003). Active learning, contextual learning, inquiry learning, learning contracts, mastery learning, and meaningful learning are all terms used to describe the various learning activities advocated by constructivism. In addition, learners must want to learn and share information in an online environment. Learners must not be passive, silent or sleeping partners in the learning process. They are constantly challenged and provoked with new perspectives.

Analyzed closely, these learning principles are exactly what have been outlined by Chickering and Gamson's *Seven Principles for Good Practice in Undergraduate Education* (1987). Learners are presented with appropriate learning materials and tasks that match, or better yet, somewhat exceeds their proficiency level. And in phases, they are provoked with challenging motives and perspectives that can 'hook' them to the learning process. All of this might be hard to fathom for some, but so was the thought of being able to lug around a laptop computer some fifty-five years ago when super computers were the size of whole floors. But the truth of the matter is

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what stands in the way of education being dragged out of the stone-age and into the 21st century is just a few steps that educators and students alike must be made aware of when they engage in online learning. Once these steps have been taken, then questions regarding the observability of results should become insignificant. Instead it now becomes "how to continue good teaching practice while integrating technology" (Robertson, Grant & Jackson, 2004).

1.3 Statement of the Problem

The central problem that was the focus of the research was to determine whether undergraduate students in *Sultan Idris University of Education* (UPSI) are aware of the Seven Principles for Good Practice in Undergraduate Education. A sub-problem that the research also investigated was the perception of UPSI students towards the effectiveness of instructional strategies for online learning based on the Seven Principles. A final sub-problem that the research investigated was the validity of the Seven Principles in order to verify whether the items used actually measured what they were suppose to measure.

Consequently after categorically determining student awareness of the Seven Principles, the researcher proceeded to investigate whether student awareness was independent or related to demographic variables such as the number of semesters they had experienced online learning and faculty affiliation. In line with the central problem, it was also pertinent to identify whether the utilization level of communicative technology and online resources by teaching staff was independent or related to student awareness. The underlying purpose for this course of action was two-fold. Firstly, the researcher wanted to find out if there exist any observable

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patterns that should be noted. Secondly, are instances of student awareness of the Seven Principles occurring purely by chance?

Based on the secondary sub-problem, there was also the need to investigate whether any differences exist between the perceptions of students from different semesters towards the effectiveness of instructional strategies for online learning. This was to explore if students' perception was inclined to be influenced by an increase in the amount of experience they had with instructional strategies for online learning in an integrated environment such as UPSI.

Subsequently, there was also the need to investigate whether any differences exist between the perceptions of students from different faculties towards the effectiveness of instructional strategies for online learning. This was to analyze if students' perception was inclined to be influenced by faculty affiliation.

Last but not least, the researcher conducted an exploratory factor analysis to verify the validity of the intangible constructs being studied. This was to find out how many principles actually exist and whether the items used were tapping into the constructs that they were suppose to.

1.4 Research Objectives

The primary objective of this research was to categorically measure students' awareness of the Seven Principles for Good Practice in Undergraduate Education. Its secondary objective was to scrutinize student perception towards the effectiveness of instructional strategies for online learning. While its final objective was to verify the validity of the Seven Principles and its items.

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a. To categorically measure and gauge students' awareness of the Seven Principles for Good Practice in Undergraduate Education.

   i. To determine if student awareness was independent or related to demographic variables.

   ii. To determine if the utilization level of communicative technology and online resources by teaching staff was independent or related to student awareness.

b. To study and analyze students' perception towards the effectiveness of instructional strategies for online learning.

   i. To determine if there were differences in perception between fifth, sixth and seventh semester students towards the effectiveness of instructional strategies for online learning.

   ii. To determine if there were differences in perception between students from different faculties towards the effectiveness of instructional strategies for online learning.

c. To verify the validity of the Seven Principles and its items.

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1.5 Research Hypothesis

Based on the problems and objectives that had been identified, the researcher would like to put forth the ensuing nol hypotheses (HO) and their respective alternative hypotheses (HA):

HO1: There was statistically no significant relationship between the number of semesters students' had experienced online learning and their awareness of the Seven Principles,

HA1: There was statistically a significant relationship between the number of semesters students' had experienced online learning and their awareness of the Seven Principles.

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HO2: There was statistically no significant relationship between faculty affiliation and student awareness of the Seven Principles,

HA2: There was statistically a significant relationship between faculty affiliation and student awareness of the Seven Principles.

HO3: There was statistically no significant relationship between the use of telephone and text messaging (SMS) by teaching staff and student awareness of the Seven Principles,

HA3: There was statistically a significant relationship between the use of telephone and text messaging (SMS) by teaching staff and student awareness of the Seven Principles.

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HO4: There was statistically no significant relationship between the use of email by teaching staff and student awareness of the Seven Principles,

HA4: There was statistically a significant relationship between the use of email by teaching staff and student awareness of the Seven Principles.

HO5: There was statistically no significant relationship between the use of forums by teaching staff and student awareness of the Seven Principles,

HA5: There was statistically a significant relationship between the use of forums by teaching staff and student awareness of the Seven Principles.

HO6: There was statistically no significant relationship between the use of online resources by teaching staff and student awareness of the Seven Principles,

HA6: There was statistically a significant relationship between the use of online resources by teaching staff and student awareness of the Seven Principles.

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HO7: There was statistically no significant difference between the perceptions of fifth, sixth and seventh semester students, towards the effectiveness of instructional strategies for online learning,

HA7: There was statistically a significant difference between the perceptions of fifth, sixth and seventh semester students, towards the effectiveness of instructional strategies for online learning.

HO8: There was statistically no significant difference between the perceptions of students from different faculties, towards the effectiveness of instructional strategies for online learning,

HA8: There was statistically a significant difference between the perceptions of students from different faculties, towards the effectiveness of instructional strategies for online learning.

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1.6 Significance of the Study

The significance of this study to the field of education, specifically undergraduate education, was that it attempted to provide a theoretical framework for the application and assessment of good practice in teaching and learning. Students and teaching staff alike, must realize and understand that prior to the conceptualization of the Seven Principles, there was no surefire formula that could either guarantee successful or fair assessment of teaching and learning practices. A lot of the intricacies and idiosyncrasies that were key elements in the crafting of successful teaching and learning practices were categorized as abstract concepts or experiences that had to be acquired through trial and error.

That is why it is pertinent for all of us, to either be aware off or even acquire as a theoretical prerequisite the Seven Principles for Good Practice in Undergraduate Education. Comparable to the manner in which *Mager's Setting of Performance Objectives, Merrill's Component Display Theory, ARCS (Attention, Relevance, Confidence and Satisfaction) Theory of Motivation, Gagne's 9 Events of Instruction* and *Bloom's Taxonomy,* the Seven Principles can be utilized as a rubric for the application and assessment of good teaching and learning practices.

In the context of this study the Seven Principles was also utilized as the theoretical framework that if used as instructional strategies, might facilitate the manifestation of online learning. Quite often students and teaching staff alike find themselves in a bind when having to use new technology. Among the more frequent questions they would ask themselves were; how do you decide how to use new technology if you do not know how? How do you know where, when, and which

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technology to use when you are absolutely clueless? And how do you gain the necessary experience to utilize such new technology without being embarrassed by the mistakes that are bound to be made (Dawes, 2000)? Skillfully wielded as instructional strategies, the Seven Principles along with tools and resources such as telephones and text messaging, emails, forums (MyGuru), and learning materials (MyGuru) would enable the above mentioned questions to be answered. All that is left to be done is to use the predetermined principles in the form of instructional strategies and utilize your own judgment to where, when and which communicative technology or online resource to use.

Consequently, it was because of these reasons that the instrument used in the study was chosen. In a way, it might just be the catalyst that disseminates the much needed answers to how, where, when, and which communicative technology or online resource to use in realizing online learning. Not only that, but it may even show us the right way to go about doing so effectively.

1.7 Assumptions and Limitations of the Research

It was assumed that the participant's of this research possessed a level of computer competency that would enable them to comprehend the terminology used. It was also assumed that they would have had sufficient exposure to UPSIs' integrated online environment to enable them to relate to the instructional strategies mentioned.

Due to constraints with regards to financial resources, limited access to students and the need to obtain data from a large sample, the researcher utilized a simple cross-sectional survey to study "a sample from a population at a single point in

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time" (Ary, et al., 2002). Consequently, the researcher used the probability sampling technique of two-stage purposive cluster sampling (Cochran, 1977; Ary, et al., 2002). In case there was an urgent need for the researcher to obtain additional participants to 'make up the numbers' the technique of accidental sampling would have been used (Ary, et al., 2002).

For that reason, generalizations and conclusions based on the research's findings should only be applicable to the target population and not be considered reflective of a larger population, or in other words the norm. Furthermore, there was also the possibility that the sample would be influenced by what is known as the "Hawthorne Effect," in which it is assumed that responses to the survey's instrumentation was inadvertently influenced by participation in the research itself (Sandy, 1980). In this instance, the influence may have arisen from inadequate levels of exposure to the instructional strategies for online learning and also the innovativeness of the Seven Principles for Good Practice in Undergraduate Education.

1.8 Operational Definitions

The following are terms and definitions that were contextualized by the researcher for use in this research.

1.8.1 Asynchronous Communication

Online tools that do not require real-time interaction. For example, email, [forums] and electronic bulletin boards (Lever-Duffy et al., 2003).

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1.8.2 Behaviorists

Those who view all behavior as a response to external stimuli; they believe that the learner acquires behaviors, skills, and knowledge in response to the rewards, punishments, or withheld responses associated with them (Lever-Duffy et al., 2003).

1.8.3 Catalyst

An instrument to bring about change.

1.8.4 Cognitivists

Those who focus on learning as a mental operation that begins when information enters through the senses, undergoes mental manipulation, is stored, and finally used (Lever-Duffy et al., 2003).

1.8.5 Communicative Technology

The use of "microprocessor-based resources" such as telephones, text messaging, personal digital assistant (PDA), email, and forums to interconnect with learners (Seels & Richey, 1994).

1.8.6 Constructivism

A school of psychology which holds that learning occurs because personal knowledge is constructed by deriving meaning from experience and the context in which that experience takes place (Seels & Richey, 1994).

1.8.7 Competency

Knowledge, skills, or attitudes which the student can demonstrate at a pre-determined level (Seels & Richey, 1994).

1.8.8 Diffusion of Innovations

The process of communicating through planned strategies for the purpose of gaining adoption (Seels & Richey, 1994).

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1.8.9 Dissemination

Deliberately and systematically making others aware of a development by circulating information (Seels & Richey, 1994).

1.8.10 Effectiveness

"Measuring the degree to which" students perceive the successful use of instructional strategies for online learning (Morrison et al., 2001).

1.8.11 Efficiency

The economical pursuit of ends through use of resource (Seels & Richey, 1994).

1.8.12 Feedback

Providing students with answers to exercises and other information relative for progress in learning (Morrison et al., 2001).

1.8.13 Individualized Learning

Allowing learners to learn by providing appropriate objectives and activities with regards to their characteristics, preparations, needs, and interests (Morrison et al., 2001).

1.8.14 Instruction

A set of events, [either in the form of activities or commands, which] affects learners in such a way that learning is facilitated (Gagné & Briggs, 1979).

1.8.15 Instructional Design

The systematic planning of instruction in which attention is given to nine related elements (Morrison et al., 2001).

1.8.16 Instructional Designer

The person responsible for carrying out and coordinating the systematic design procedure (Morrison et al., 2001).

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1.8.17 Instructional Development

Managing the planning, development, and implementation procedure for instruction or training (Morrison et al., 2001).

1.8.18 Instructional Event

The manner in which a learning experience has been designed beginning with learning objectives all the way to outcomes (Lever-Duffy et al., 2003).

1.8.19 Instructional Objective

Statements describing what the learner is specifically required to learn or accomplish relative to a topic or task (Morrison et al., 2001).

1.8.20 Instructional Strategy

Specifications for selecting and [arranging] events and activities within a lesson (Seels & Richey, 1994).

1.8.21 Instructional Technology

The use of resources such as [equipment] and materials for the process of instruction (Morrison et al., 2001).

1.8.22 Intellectual Skill

Organizing and structuring facts for learning to form concepts, principles, rules, attitudes, and interactions (Morrison et al., 2001).

1.8.23 Learner Characteristics

Factors relating to personal and social traits of individuals and learner groups that need to be considered during planning or learning (Morrison et al., 2001).

1.8.24 Learning

The active process of acquiring knowledge or skills, before permanent changes in behavior or attitude occur due to experience (Seels & Richey, 1994).

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1.8.25 Learning Activity

"The activity carried out by a leaner either by means of self-instruction or with guidance" from teaching staff that result in learning (Dewan Bahasa & Pustaka, 2002).

1.8.26 Learning Strategy

The manner in which instruction is presented determines how the student can process the information (Lever-Duffy et al., 2003).

1.8.27 Learning Styles

Various methods of learning that are preferred by individuals or may be more effective with different individuals (Morrison et al., 2001).

1.8.28 My Guru

The Integrated Management System (IMS) used by Sultan Idris University of Education (UPSI).

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1.8.29 Online Instruction

Either the "presentation of information" or arrangement of learning activities or distribution of commands; conducted or communicated electronically using "microprocessor-based resources" that "affect learners in such a way that learning is facilitated" (Lever-Duffy et al., 2003; Seels & Richey, 1994; Gagné & Briggs, 1979).

1.8.30 Online Learning

Is any learning that utilizes the Internet to deliver instruction to learners separated by time, distance or both. However, there are forms of synchronous or asynchronous learning that cannot be considered online learning for example correspondence courses and computer-based training using CD-ROMs without web components (Reiser & Dempsey, 2002).

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1.8.31 Paradigm

The mind-set that guides an individuals' course of action.

1.8.32 Paradigm Paralysis

An individuals' state of closed mindedness that rejects suggestions about improving their course of action.

1.8.33 Perception

Student observation concerning the degree of success to which instructional strategies are being used for online learning.

1.8.34 Prerequisite Test

Portions of a pretest that measure content or skill preparation a learner has to have before starting a course or unit (Morrison et al., 2001).

1.8.35 Pretest

A test administered prior to the start of instruction to determine the learner's level of knowledge and the necessary preparation relative to a topic or task (Morrison et al., 2001).

1.8.36 Principles

The underlying value system that should guide an individuals' course of action.

1.8.37 Proficiency Level

The amount of knowledge, skill or experience possessed by a student prior to receiving instruction (Cambridge, 2003).

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1.8.38 Rubric

A form of check-list that specifies the objective application, successful evaluation and effective assessment of definite principles (Lever-Duffy et al., 2003).

1.8.39 Scaffolding

The process of building bridges to prior knowledge at the beginning of a lesson (Lever-Duffy et al., 2003).

1.8.40 Self-Paced Learning

Allowing learner's to satisfy required learning activities by accomplishing objectives at their own speed or convenience (Morrison et al., 2001).

1.8.41 Seven Principles

Refers to the Seven Principles for Good Practice in Undergraduate Education. They are;

(i) Encourages Contact Between Students and Teaching Staff,

(ii) Develops Reciprocity and Cooperation Among Students,

(iii) Encourages Active Learning,

(iv) Gives Prompt Feedback,

(v) Emphasizes Time on Task,

(vi) Communicates High Expectations &

(vii) Respects Diverse Talents and Ways of Learning.

1.8.42 Synchronous Communication

A method of communication in which the participants interact at the same [or in real] time (Lever-Duffy et al., 2003).

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1.8.43 Theory of Multiple Intelligences

Howard Gardner theorized that each individual has multiple types of intelligences, only a few of which can be measured by IQ tests. These intelligences [or talents] include the verbal linguistic, mathematical-logical, musical, visual-spatial, bodily kinesthetic, interpersonal, intrapersonal, naturalistic, and existential intelligences (Lever-Duffy et al., 2003).

1.8.44 Teaching

The "presentation of information" or arrangement of learning activities or commands by an individual entrusted with the responsibility to conduct learning activities or provide guidance (Lever-Duffy et al., 2003).

1.8.45 Teaching Staff

The individual entrusted with the responsibility to formally conduct learning activities or provide guidance. Also known as educator, teacher, tutor, instructor, coach, trainer, facilitator, lecturer or professor.

1.9 Research Summary

The proliferation of personal computers and the Internet has been without doubt important elements in on our daily lives. All that one has to do is look around to see how much our lives have changed because of them. Yet, their utilization as an information age teaching tool remains stunted. Why is this so? What is holding the field of education back? How long have we been hearing about predictions concerning paradigm shifts in the way educators would conceptualize and deliver education? If it was just about issues pertaining to the practicality and acceptance of computers and the Internet, then all that has to be done is read up on John Naisbitt's; *Megatrends;*

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Ten New Directions Transforming Our Lives and Everett Roger's; *Theory of Diffusion and Adoption*. Then again that was never really the issue. The real problem lies with those who have access to such technology but are not able to cope and make it all work. What are they waiting for? Anything and everything that attempts to cajole them out of their comfort zone is either painful or disorientating. Shying away from change and going back to their tried and tested ways is an understatement.

That is why it is pertinent for students and teaching staff alike to be mutually aware or better yet acquire as a theoretical prerequisite the Seven Principles for Good Practice in Undergraduate Education. Without such a theoretical framework, it would not be probable for good teaching and learning practices to be justly integrated with technology. Only after being armed with such knowledge would students and teaching staff alike no longer find themselves in a bind when having to use new technology. Confidently, they will be able to execute instructional strategies using tools and resources such as telephones and text messaging, emails, forums (MyGuru), and learning materials (MyGuru). Intuitively they would now be able know where, when, and which technology to use. With the Seven Principles serving as a guide for the application and manifestation of good teaching and learning practices in either a conventional or online environment, the future is already here to be had.

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CHAPTER 2

REVIEW OF LITERATURE

2.1 Introduction

This review of literature was conducted from a chronological perspective. It attempts to trace and chronicle the history of how machines were hypothesized to be used to facilitate human learning. It also elaborates on how the field of instructional design has evolved from its humble beginnings as part of educational technology to becoming the bridge that connects the field of education as it used to be, with the field of education as it needs to be in the 21st century. Furthermore, this review narrates how the Seven Principles for Good Practice in Undergraduate Education can be used as a catalyst to replicate the meaningful interaction omnipresent in face to face classrooms. Lastly, the review brings readers up to speed with current developments that have occurred in the field as of late.

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2.2 How Machines were Hypothesized to Facilitate Human Learning

The use of teaching machines to conduct programmed instruction to engineer human behavior was originally proposed in 1938 by B.F. Skinner in his book *The Behavior of Organisms: An Experimental Analysis*. In 1968, Skinner again advocated the significance of using teaching machines, specifically those that he had invented, in his book *The Technology of Teaching* (Lever-Duffy et al., 2003).

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At around the same period in time, psychologists began making attempts at finding ways to apply the principles of cybernetics. The analogy made famous by this generation of psychologists was that of humans and machines being "self regulating feedback systems" (Joyce, Weil & Showers, 1972). Also in 1968, the first course that taught the systematic design of instruction was conducted at Florida State University.

In 1972, Skinner published his most controversial book *Beyond Freedom and Dignity* in which he hypothesized that it is with behavioral engineering and not individual freedom, that the key to the survival of the human race lies (Lever-Duffy et al., 2003). By 1978 when the first edition of Dick & Carey's now renowned book *The Systematic Design of Instruction* was published, issues relating to performance technology, constructivism and computers had been incorporated in order to keep up with developments that had occurred in the field of learning theories and teaching methodology (Dick & Carey, 1996).

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2.3 The Systematic Design of Instruction

Sometime during 1978, while in Tallahasse, Florida, Robert M. Gagné & Leslie J. Briggs wrote that in order for instruction to be effective it must be planned. According to their definition, "instruction is the human undertaking whose purpose is to help people learn. Despite the fact that learning may happen without instruction, the effects of instruction on learning are often beneficial and usually easy to observe" (Gagné & Briggs, 1979). The main purpose of their book was to describe the necessary characteristics that instruction must have so as to be effective in the aid of learning. They were quick to point out that "instruction is a set of events that affects

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learners in such a way that learning is facilitated" (Gagné & Briggs, 1979). Additionally, they also pointed out that some of the events that serve as a framework for instruction may partly be internal. This is especially true when learning is comprised of activities called "self-instruction" (Gagné & Briggs, 1979).

This then lead them to suggest that the use of the word "instruction" would be more suitable compared to the word "teaching" in describing "all of the events that may have a direct effect on the learning of a human being, not just those set in motion by an individual who is the teacher" (Gagné & Briggs, 1979). Needless to say, the presentation of information or arrangement of learning activities may still be the prerogative of teachers, though they can now choose to sit back and facilitate learners in the managing of instructional events for themselves. Teaching, without any lost in stature due to its ability to withstand the test of time, is thus proposed to be only one form of instruction.

Howard Gardner in his *Theory of Multiple Intelligences* provided invaluable evidence to support this notion. In defining intelligence he states that,

> *...intelligence is an ability to solve a problem or fashion a product that is valued in one or more cultural setting. 'Problems' can be anything from creating an end to a story to anticipating a chess move to fixing the brakes on your car. 'Products' can range from scientific theories to musical composition to successful political campaigns.*
>
> (Rose & Nichol, 1997)

In simple English, what all of this means is that intelligence is as diverse as life itself. Who are we to say that a craftsman, musician or politician is of lesser intelligence compared to an astrologer, physician or scholar? Being good at a particular trade and not another does not make one any less of a man or woman compared to the next Tom, Dick, Harry or Jane. It is just that we are unique individuals with characteristics that are ours and ours alone. Each blessed with their own strengths and weaknesses.

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Consequently when the technology was finally available to facilitate the need to cater to student diversity and personalized instruction, teachers struggled to cope. Instead of welcoming and embracing change, they panicked, closed ranks, went into a state of paradigm paralysis, and reverted to their tried and tested ways that has and will always be their comfort zone. Now that teachers have been educated about the changes that are long over due and are about to sweep through their domain, it is time to get down to the intricacies of how to utilize the technology that is now available in a manner that is as familiar as their favorite pair of shoes.

2.4 The Seven Principles for Good Practice in Undergraduate Education

Written by Arthur W. Chickering & Zelda F. Gamson, the Seven Principles were first published in March 1987 in an *American Association for Higher Education* (AAHE) bulletin. Prior to this, the both of them had been involved with the *Council on Adult and Experiential Learning* (CAEL). Along with other CAEL council members they were part of a movement that was looking at various approaches to improving American higher education. This was in response to criticism such as "apathetic students, illiterate graduates, incompetent teaching and impersonal campuses" (Chickering & Gamson, 1987). It was while with the council that they were acquainted with the 'principals of good practice in experiential learning,' and decided to fashion something similar for undergraduate education. Compiling lessons learnt from past experiences and making the most of the principals drawn from good practices in experiential learning, they were able to come up with the rubric; Seven Principles for Good Practice in Undergraduate Education. Their goal was to ascertain how students and teaching staff could go about improving undergraduate education.

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According to Chickering & Gamson, these principles are not the 'ten commandments' that have to be adhered to religiously (1987). Instead they are just guidelines that should be applied using good old fashion common sense by administrators, teaching staff and students alike. Anyone of us who have had the opportunity to learn from a good teacher would have unknowingly experienced these principles first hand. Moreover, the Seven Principles are based on 50 years of research regarding the way teachers teach and students learn. It acknowledges that content and pedagogy interact in their own intricate way. Hence, what is taught is as important as how it is taught.

The Seven Principles of Good Practice are;

1. ***Encourages Contact Between Students and Teaching Staff***

   Frequent student-teaching staff contact in and out of class is the most important factor in student motivation and involvement. Teaching staff concern helps students get through rough times and keep on working. Knowing a few staff members well enhances students' intellectual commitment and encourages them to think about their own values and future plans.

2. ***Develops Reciprocity and Cooperation Among Students***

   Learning is enhanced when it is more like a team effort than a solo race. Good learning, like good work, is collaborative and social, not competitive and isolated. Working with others often increases involvement in learning. Sharing one's own ideas and responding to others' reactions often increases involvement in learning, sharpens thinking and deepens understanding.

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3. ***Encourages Active Learning***

Learning is not a spectator sport. Students do not learn much just by sitting in classes listening to teaching staff, memorizing pre-packaged assignments, and spitting out answers. They must talk about what they are learning, write about it, relate it to past experiences and apply it to their daily lives. They must make what they learn part of themselves.

4. ***Gives Prompt Feedback***

Knowing what you know and don't know focuses learning. Students need appropriate feedback on performance to benefit from courses. When getting started, students need help in assessing existing knowledge and competence. In class, students need frequent opportunities to perform and receive suggestions for improvement. At various points during college, and at the end, students need chances to reflect on what they have learned, what they still need to know, and how to assess themselves.

5. ***Emphasizes Time on Task***

Time plus energy equals learning. There is no substitute for time on task. Learning to use one's time well is critical for students and professionals alike. Students need help in learning effective time management. Allocating realistic amounts of time means effective learning for students, teaching staff, administrators, and others so as to be able to establish a basis of high performance for all.

6. ***Communicates High Expectations***

Expect more and you will get more. High expectations are important for everyone, from the poorly prepared, to those unwilling to exert themselves, and for the bright and well motivated. Expecting students to perform well becomes a self-fulfilling prophecy when teaching staff and institutions hold high expectations for themselves and make extra efforts.

7. ***Respects Diverse Talents and Ways of Learning***

There are many roads to learning. People bring different talents and styles of learning to college. Brilliant students in the seminar room may be all thumbs in the lab or art studio. Students rich in hands-on experience may not do so well with theory. Students need the opportunity to show their talents and learn in ways that work for them. Then they can be pushed to learn in new ways that do not come so easily.

(Chickering & Gamson, 1987).

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In 1996, Chickering & Stephen C. Ehrmann updated the Seven Principles in an article entitled *Implementing the Seven Principles: Technology as a Lever.* In summary, technology was identified as a major resource for teaching and learning. It was emphasized that in order for the potential of new technologies to be fully realized they must be utilized in ways consistent with the Seven Principles. Communicative technologies that increase access to teaching staff, aid in the sharing of useful information and provide avenues for cooperative problem solving, are examples of the types of technology that can be utilized.

The rationale specified was that it is often easier to discuss values and personal concerns in writing than to do so orally. This is because inadvertent or ambiguous nonverbal signals, such as body language and aggressive gesturing, are not so dominant. E-mail, computer conferencing and the Internet were credited with increasing opportunities for students and teaching staff to converse and exchange work much more speedily, thoughtfully and 'safely' than when 'confronting' each other in a classroom or faculty office. By and large total communication increases, and for many students, this increase seems more intimate, protected, and convenient than the more intimidating demands of face-to-face communication. Communication is also eased when neither student nor teaching staff is a native speaker of English. Each party can take a bit more time to interpret, translate or even grammatically enhance what has been said and compose appropriate responses.

The extent to which computer-based tools encouraged spontaneous student cooperation was one of the earliest surprises about computers. A clear advantage of email was that it opened communication avenues for classmates even when they were not physically together. Moreover, the range of technologies that encouraged active learning was also found to be quite staggering. Many fell into one of three categories;

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tools and resources for learning by doing (in fields that require the use of technology as a tool), time-delayed exchange (asynchronous), and real-time conversation (synchronous). All three can be supported with software originally developed for other purposes but can also be used for instruction too.

The ways in which new technology can provide prompt feedback are varied, sometimes obvious, and sometimes subtle. Email for example, has already been highlighted as being used to support person-to-person feedback. Sophisticated database applications can be utilized to record and analyze personal and academic performances. Video and audio streaming technology can be used to provide critical observations or performance critiques of teachers, students, apprentices, performers and even athletes alike. Teaching staff or other students can even react to a writer's draft using the 'Track Changes' option available in word processors.

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New technologies can also dramatically improve time on task for students and faculty members. Working with computers can often affect users who are either beginners or intermediates to spend a lot of time in front of the computer, thus forcing them to be more purposeful and constructive with their time instead of goofing off. Additionally, technological breakthroughs are now allowing students and teaching staff alike to access important resources for learning and teaching without having to trudge to the library, flip through card files, scan microfilm, and scrounge through reference rooms.

The communication of high expectations using new technologies can be explicit and efficient. Significant real-life problems, conflicting perspectives or paradoxical data can set powerful learning challenges that drive students to not only acquire information but sharpen their cognitive skills of analysis, synthesis, application and evaluation. Many teaching staff report that they and their students feel

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stimulated by knowing that their finished work will be 'published' on the Internet. With technology, the criteria for evaluating products and performances can be more clearly articulated by teaching staff, or generated collaboratively with students. General criteria can be illustrated with samples of excellent, average, mediocre and faulty performance using available technology. These samples can then be used to provide a basis for peer evaluation.

Diverse students bring different talents and styles to the classroom. Technological resources can provide for different methods of learning via powerful visuals and well-organized print. They can also encourage self-reflection and self-evaluation. They can drive collaboration and group problem solving. Technologies can help students learn in ways they find most effective and broaden their repertoire for learning. They can supply structure for students who need it and leave assignments more open-ended for students who do not. Fast and bright students can move quickly through materials they master easily and move on to more difficult tasks. Slower students can take more time, get more feedback, and more help from teachers and fellow students. Aided by technology, students with similar motives and talents can work in study groups without constraints of time and place (Chickering & Ehrmann, 1996).

2.5 Discussion about the Seven Principles

In the year 2000, Charles Graham, Kursat Cagiltay, Byung-Ro Lim, Joni Craner & Thomas M. Duffy online course evaluators from *Indiana University's Center for Research on Learning & Technology* published a study entitled; *Seven Principles of Effective Teaching: A Practical Lens for Evaluating Online Courses.*

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The following is a summary of what they had to add to the existing body of knowledge based on lessons learnt from previous evaluations of other online courses. To begin with, it was advisable for students to be able to instantly recognize strategies for interacting with teaching staff, specifically the types of communication permissible and the timeframe for responding to emails or messages. For example, questions regarding technical support or references to grades should not be posed. Emails and messages should be responded to within two working days or during specified timeslots.

With regards to encouraging cooperation among students, it was suggested that students should be able to identify the design of discussion assignments to smooth the progress of meaningful cooperation. To do this, discussion groups should be kept small, focused on tasks, and be output oriented. Moreover, the teaching staff responsible should initially post expectations for discussions, and subsequently create tasks that would engage students in either a meaningful or contextual manner. Students are then provided with feedback on their discussions, and are evaluated based on the quality of their postings. More importantly, it was necessary to have portions of students' grades be dependent on their participation in online activities.

As for encouraging active learning, it was recommended that students should always present their completed projects. "Although formal synchronous presentation may not be practical online" the utilization of class websites, forums or blogs will create opportunities for comments and constructive criticism to be passed-on in an asynchronous manner (Graham, Cagiltay, Byung-Ro, Craner & Duffy, 2000). For example, after completing their project students can chose to either upload their work to a free website or create a blog. Once uploaded, teaching staff and other students are free to comment and criticize constructively using either email or tag-boards. Upon

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evaluation of the comments and criticisms made, students can make the necessary updates and subsequently repost their work. By the end of the course the teaching staff responsible would need to compile reactions towards the presentations, identify concerns, highlight overlooked issues and convey them to students.

In view of receiving prompt feedback, it was proposed that students can either receive information feedback or acknowledgement feedback. Information feedback serves the function of providing information based on some kind of assessment, while acknowledgement feedback serves the function of confirming the occurrence of some event. Acknowledgement feedback was often overlooked in online environments because it required "purposeful effort" as opposed to face-to-face environments in which it can be unspoken (Graham et al., 2000). For example, making "eye contact", a nod of the head, or even handing in assignments by hand (Graham et al., 2000). On top of that, students and teaching staff alike often have to deal with increasingly hectic schedules as the semester progresses resulting in a decrease in response frequency and an increase in response time. This in turn results in a need for a shift in approach, from teaching staff having to address individual students to them responding to whole classes instead (Graham et al., 2000).

As for emphasizing time on task, the need for deadlines was emphasized. There is just no substitute for repeatedly-disseminated deadlines that push students to spend time on task, help those with busy schedules avert procrastination and provide a context for frequent contact with teaching staff and peers.

Given that there was also a need to communicate high expectations, students must be willing to accept challenges that test their limits, utilize authentic real life situations and not expect to be heaped with praises. Students should not be obsessed with what they achieve immediately, for achievements can be surpassed. More

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importantly, they must come to realize that the key to long term success is actually the journey that they embark on and endure.

Bearing in mind that diverse talents and ways of learning must be respected, Graham et al., (2000), suggested that students should initially expect only "guidelines" from teaching staff. It is the opinion of the writer that they ought to be mindful of the instructional strategies or techniques employed by teaching staff to extract the maximum amount of effort from students. In addition, teaching staff would also want to safeguard themselves from predatory students and discourage the practice of 'spoon feeding'. If and when students require further guidance, they should be brave enough to ask for it and be prepared to pay the price.

2.6 Current Developments in the Field

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Locally in Malaysia, a survey was conducted by Zolkepeli Haron, Effandi Zakaria, Zurina Mahadi & Hukil Sino in 2001, entitled; *The Perception of Distance Education Students (PJJ) from the National University of Malaysia (UKM) towards Online Learning*. The research question that they attempted to answer was whether the perception of students towards online learning should be taken into consideration in determining its efficiency as a learning and teaching method.

The purpose of their research was two-fold. Primarily, they wanted to investigate student perception towards educational websites. Secondly, they wanted to investigate student perception towards the utilization of educational websites to access online learning and teaching materials.

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Firstly, their findings revealed that UKM PJJ students had a moderately positive perception towards educational websites. Further analysis of the data indicated that UKM PJJ students had reservations regarding the validity of information to be found on them. Subsequently, there was demographically no difference in perception between UKM PJJ students and their perception towards the utilization of educational websites to access online materials.

However, there were significant differences in perception between UKM PJJ students and the variables of having their own Internet account, experienced in using the Internet, and possessing the competency to utilize such technology. Consequently, students who possessed these variables were inclined to have a more positive perception towards online learning. As a whole Zolkepeli Haron et al., (2001), concluded that UKM PJJ students had a moderately positive perception towards online learning. Unfortunately, their research did not attempt to establish a relationship between student perception and academic achievement.

In the original study on which this research is based on entitled, *Perceptions of the Effectiveness of Online Instruction in terms of the Seven Principles of Effective Undergraduate Education* by Stan G. Guidera, (2003), the effectiveness of online instructional delivery was assessed by teaching staff experienced in teaching both online and traditional classroom environments. The research question investigated was; do teaching staff perceive online instructional delivery to be as effective as traditional face-to-face instruction in meeting the instructional objectives outlined in the Seven Principles of Effective Undergraduate Education? By utilizing the Faculty Inventory instrument Guidera collected the necessary data for his research. The Faculty Inventory was obtained from the Teaching, Learning & Technology Group (TLT) / Flashlight Program, in which Ehrmann is currently the director.

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The findings of the study rejected the null hypothesis for the research question. Overall it was concluded that teaching staff over there perceived online instruction to be somewhat effective at meeting certain objectives. However, the perceived level of effectiveness was not consistent across all seven principles. For example, online instruction was found to be less effective for promoting student-teaching staff interaction and cooperation among students. On the other hand, online instruction was found to be effective in providing prompt feedback and communicating high expectations (Guidera, 2003).

In 2004, Janna S. Robertson, Michael M. Grant & Lorrie Jackson published their research entitled, *Is Online Instruction Perceived as Effective as Campus Instruction by Graduate Students in Education?* Their opening argument was that there is a need to investigate the use of "classroom technologies" along with their "sophisticated features" to determine whether it is possible to replicate the meaningful interactions evident in face-to-face classrooms (Robertson et al., 2004).

They strongly felt that it was pertinent to fundamentally be able to answer the question of "how to continue good teaching practices while integrating technology, specifically for online or Web-based instruction" (Robertson et al., 2004)? Thus the research question investigated was; is online or web-based instruction perceived as effective as face-to-face instruction by graduate students in teacher education? Subsequently, Robertson et al., collected their data using an instrument that was in the form of an online survey adapted from a research by Nguyen, Cripps & Draude (2002), which in turn had been adapted from Chickering & Erhmann's (1996) original study wherein the Seven Principles were updated for online instruction.

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The findings of the research did not reveal any significant differences between the effectiveness of online instruction compared to conventional face-to-face instruction. However it did indicate that in terms of interaction between student and teaching staff, online instruction may be equivalent to conventional instruction. Although students of online classes rated the amount of learning they experienced in class to be higher than of those who took conventional courses, their scores were not significantly different. Thus, the results were attributed more to chance rather than a meaningful difference in score.

Additionally, the ratings received for student collaboration and active learning was slightly higher for conventional classes than for online ones. Yet again, the scores were not significantly different and the results were attributed more to chance rather than a meaningful difference in score. Consequently, Robertson et al., stressed that their findings should not be used as evidence to differentiate between the effectiveness of online or conventional campus instruction.

Besides their findings Robertson et al., had also compiled a list of criticisms categorized according to each of the Seven Principles to add to the existing body of knowledge. These criticisms were from various other studies that had utilized the Seven Principles as their theoretical foundation. The following is a review of the criticism amassed by Robertson et al., along with interjections by the writer.

With regards to encouraging contact between students and teaching staff, a number of studies have indicated that a lack of personal contact with teaching staff continues to concern students in online courses (Knipe & Lee, 2002; Peters, 2001; Solloway & Harris, 1999; Valenta, Therriault, Dieter & Mrtek, 2001). Devoid of before and after class informal social dialogue, students in online courses feel

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restricted in the amount of time they had to ask questions and obtain support (Knipe & Lee, 2002).

Additionally, there have been suggestions that students' skill and interest level in socializing online impacts their perception of teaching staff effectiveness while interacting online to deliver instruction (Peters, 2001). In other words, if students are more proficient and motivated while teaching staff are paradigmatically paralyzed or indifferent, then most probably their perception towards teaching staff effectiveness would be cynical.

Furthermore, suggestions that some students are not ready too deal with their own learning, and feel discouraged or perplexed when teaching staff deliberately withhold support from them even in online environments have also been made (Solloway & Harris, 1999). Basically, there are students out there who are lazy and will use every trick in the book to be spoon fed. If they fail to get their way, they tend to throw fits and forever remain blissfully ignorant.

Last of all, it has also been identified that students with low proficiency writing skills may find the medium even more intimidating than communicating in class, necessitating yet "advance understanding of the English language" (Peters, 2001). To put it briefly, if technology is the teaching tool of the Information Age then the English Language is its *lingua franca*.

In view of developing reciprocity and cooperation, students felt they actually learnt less because they had to bring something to the discussion table, particularly when teaching staff limited their input into discussions (O'Malley & McGraw, 1999; Solloway & Harris, 1999). They reported this as a concern in relation to poor collaboration and desired for more allowances to be made until their confidence grew (Solloway & Harris, 1999). Additionally, students felt that the benefits of shared

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experience, camaraderie and social interactions outweigh the advantages of working conveniently from remote (Valenta, Therriault, Dieter & Mrtek, 2001). In brief, this can be interpreted as a request for opportunities to hold-hands, plagiarize and make a fool out of teaching staff. Like the saying goes, where there is a will, there will always be a way. But if the mind is weak, then the body will fail.

Bearing in mind the need to encourage active learning, studies have indicated that online instruction is still limited to lower order cognitive functions (Knipe & Lee, 2002). Students still perceive online instruction as yet another exercise for learning by memorization, acquiring new terms and practicing contemporary skills. Furthermore, there have also been reports that online instruction lacks critical thinking skills that are common in conventional courses (Robertson et al., 2004). This is to be expected since online instruction is currently being implemented without proper design of instructional objectives, strategies and events. By not doing so, the testing and examination of students would most probably be restricted to the lower levels of Bloom's Taxonomy.

Taking into consideration the requirement of giving prompt feedback, studies have indicated that students are not receiving the feedback they require. This was simply because of inadequate teaching staff know-how with regards to "teaching strategies, technology skills, interest level and preparation" amounting to minimal feedback and interaction in online classrooms (Peters, 2001; Solloway & Harris, 1999; Knipe & Lee, 2002; Hill, 2002). By increasing awareness or better yet the acquisition of Chickering & Gamson's Seven Principles for Good Practice in Undergraduate Education, Mager's Setting of Performance Objectives, Merrill's Component Display Theory, Keller's ARCS (Attention, Relevance, Confidence and Satisfaction) Theory of Motivation, Gagne's 9 Events of Instruction and Bloom's Taxonomy, as theoretical

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prerequisites, teaching staff will now be adequately equipped to deal with the demands of education in the 21st century.

Given that time on task requires emphasizing, studies have revealed that the smaller the amount of time spent online, the lesser the amount of confidence students have that an online tool can facilitate academic improvement (Peh & Foo, 2001). In addition, studies reveal that students who have the advantage of time, resources and easy access to technology stand to gain the most compared to those who are at a disadvantage (Valenta et al., 2001). There have also been reports that students are tempted to register for additional online courses but sense that they learnt less online as compared to conventional courses (O'Malley & McGraw, 1999).

With regards to communicating high expectations, few studies have been conducted regarding the impact of online instruction on perceptions of high expectations. More often than not, the term "workload" is associated with high expectations (Robertson et al., 2004). Thus, there have been complaints of a heavier workload online compared to conventional courses (Peh & Foo, 2001; Tamashiro, 2004; Valenta et al., 2001).

Taking into consideration the need to respect diverse talents and ways of learning, studies have not found any differences between the perception of either "singular or multimodal learners and the Web-based strategies" used (Frey, Faul & Yankelov, 2003). Similarly, no difference was found "in learner preference when conscious efforts were employed to address" their diverse talents and ways of learning (Sanders & Morrison-Shetland, 2001).

Findings also suggested that students "with limited technology skills perceive online instruction as less effective or dissatisfying than those with more robust skills" (Robertson et al., 2004). However, "groupings of learner preferences suggested that at

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least some students have a learning style that works better in an online environment" (Valenta et al., 2001). It was suggested that online instruction appears to yield returns for students who are "predisposed to learning electronically and not the entire student population" (Tamashiro, 2004). Perhaps the younger students, who are techno savvy, possess the aptitude and capacity to assimilate and keep up with the frantic pace of technological development, are more suitable for online learning compared to those who are from a different generation.

Subsequent criticism towards the Seven Principles as a whole was also mentioned in the study. Among the more notable criticisms that were directed at the Seven Principles are, "the small class size required for in-depth interaction between students and [teaching staff] was simply not cost [effective] for most institutions" (Heterick, 2002). Additionally, "the Seven Principles are only effective for those students with a specific skill set and learning style" (Fitzsimmons, 2001). Furthermore, it has been established "that independent learners are more satisfied, and experience more learning with the new mode of instruction. Learners who rely on child-like models of learning struggle with both course content, online technologies and tasks" (Fitzsimmons, 2001). Moreover, it was the opinion of Robertson et al., (2004), that the Seven Principles might not "address the unique nature of graduate students and their relationship with [teaching staff]. With primarily smaller class sizes, increased face-to-face time, and more often than not an independent learning style, the graduate setting lacks many of the challenges that Chickering & Ehrmann attempted to address with undergraduate populations."

The most callous criticism leveled at the Seven Principles was that of "the lack of alternatives to the precise teaching methodologies it endorsed" (Robertson et al., 2004). It must have been forgotten that Chickering & Gamson, did emphasize that the

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principles are not 'ten commandments' that have to be adhered to religiously. Instead they are just guidelines that ought to be used as a rule of thumb. Furthermore, it is highly debatable whether Robertson et al., was accurate in describing the Seven Principles as a methodology. This is similar to the manner in which Guidera limited himself to generalizing that the Seven Principles are a form of instructional delivery for online environments.

In the opinion of this critic, the Seven Principles are more like a rubric for the selection and arrangement of events and activities within a lesson, or by definition, they are actually instructional strategies (Seels & Richey, 1994). Unfortunately, this was never made clear by any of the previous studies because the instructional strategies themselves were organized in an obscured manner.

In 2005, J. B. Arbaugh and Alvin Hwang published their research entitled; *Does "teaching presence" exist in online MBA courses?* Their research focused on teaching presence because it was the least researched and conceptually developed of the three types of presence originally proposed by Garrison, Anderson and Archer as their Community of Inquiry Model (2000), *Critical inquiry in a text-based environment: Computer conferencing in higher education.*

Garrison et al. suggested that effective online learning was the function of three types of presence (Arbaugh & Hwang, 2005). Firstly, social presence which was described as the ability of learners to project themselves socially and emotionally, thereby representing themselves as real people. Secondly, cognitive presence which was defined as the extent to which learners are able to construct and confirm meaning through sustained reflection and discourse. Lastly, teaching presence which was described as the design, facilitation and direction of cognitive social processes for the purpose of realizing personally meaningful and educationally worthwhile learning

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outcomes. It was stated that the lineage of this model can be traced to Chickering and Gamson's Seven Principles and studies by the National Research Council's Commission on Behavioral and Social Sciences and Education about *How People Learn.*

According to Arbaugh and Hwang, teaching presence is in turn comprised of three components; Instructional Design and Organization, Facilitating Discourse and Direct Instruction. For that reason the research questions that Arbaugh and Hwang wanted to find answers for; are Course design and Organization, Facilitating Discourse and Direct Instruction empirically distinct dimensions of teaching presence? This was for all intent and purpose to verify the validity of the constructs that define the dimensions for teaching presence. Hence, Arbaugh and Hwang conducted a confirmatory factor analysis "to test for significance of item loadings on each respective factor, relationships among the factors, and fit of hypothesized factor model to the data" (2005).

Their findings revealed that the three components of teaching presence could be empirically validated. Moreover, the test results obtained "provided a comprehensive multi-prong [platform for testing the] discriminality of underlying factors in the teaching presence framework, the significance of items that made up these factors" and their relationships. Consequently, enabling them to answer "calls for a conceptually grounded and empirically sound basis" for effective online learning (Arbaugh & Hwang, 2005).

For the Instructional Design and Organization component, Arbaugh and Hwang emphasized the need for instructors to communicate goals, provide clear instructions on participation behavior, the setting of deadlines and time frames for activities, and the setting of guidelines and boundaries to facilitate effective student

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interaction. As for the Facilitating Discourse component, they emphasized the need for ongoing process interventions and interactions by the instructor to promote discovery and understanding, encouraging and acknowledging student participation, creating channels for effective dialogue, keeping students from straying, monitoring their interactions, and providing guidance instead of letting students work in isolation. Such collaboration in an online environment was said to stem from Chickering and Gamson's principle of encouraging contact between students and teaching staff. Lastly for the Direct Instruction component, it was emphasized that an instructor must shoulder the role of providing intellectual and scholarly leadership via the sharing of knowledge with students. "The process of raising student knowledge has been the central role of the instructor in the traditional classroom environment and continues to be so in the online environment" (Arbaugh & Hwang, 2005).

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CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

Each and every aspect of research "should not be arbitrary but planned and deliberate" so as to enable much needed data to be obtained in an effort to find answers or possible solutions to research problems (Cohen, Manion & Morrison, 2000). Without such a framework, relationships that have been hypothesized cannot be systematically observed and subsequently described. Consequently, the need for purposeful planning, suitable sampling of a target population, time frame, limitations, methodical development of data-gathering instrumentation, and meticulous analysis of the findings is absolutely necessary (Cohen, et al., 2000; Ary, et al., 2002).

In this chapter the research's design, variables, instrumentation, sampling, procedure for administration of questionnaires, data collection and analysis has been described in detail. This was for the purpose of establishing procedural guidelines that would ensure that the research would be conducted in an objective and valid manner. In order to visualize the conceptual framework that is the bedrock of this research, the following flow-chart was utilized.

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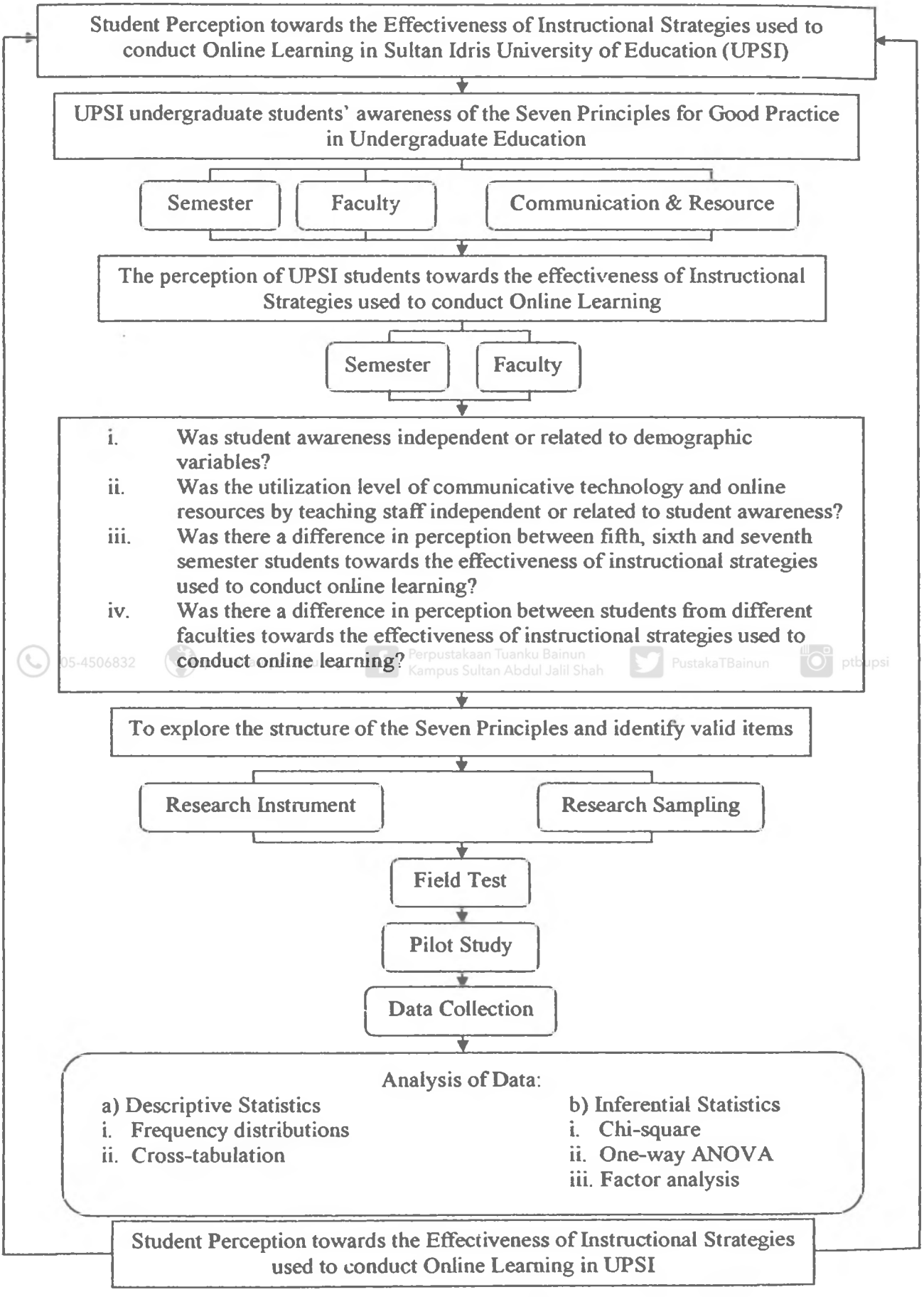


Diagram 3.1: Conceptual Framework

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3.2 Research Design

This research utilized a quantitative approach to objectively measure and statistically analyze data collected. The design of this research was non-experimental because no variables were manipulated. Instead, the researcher was looking at possible relationships and significance levels (Ary, et al., 2002).

Additionally, the research technique known as the survey method was used. Technically the format of this research was that of a sample survey measuring intangible constructs. As for categorization with regards to the type of survey, this research was a simple cross-sectional survey that attempted to study a sample from a population at a single point in time (Ary, et al., 2002).

The researcher's justification for selecting the above mentioned approach, method, format and category is as follows. Primarily, the researcher needed to gather data from a large sample quickly and inexpensively due to time and financial constraints. Secondly, measures of attitude, opinion and perception towards an issue often require the use of a questionnaire that is the hallmark of survey researches (Ary, et al., 2002). Most importantly, the objective that the researcher wanted to achieve with this method was to obtain information that was current. This was to enable him to categorically measure students' awareness of the Seven Principles for Good Practice in Undergraduate Education, with the intent to later study their perception towards the effectiveness of instructional strategies for online learning. Consequently, this survey was more descriptive in nature than analytical because of its objective (Cochran, 1977).

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3.3 Research Variables

The variables used by the researcher in this research are as follows;

3.3.1 Independent Variables

By definition, independent variables are hypothesized to influence dependent variables (Ary, et al., 2002). In the context of this research, the independent variable that was hypothesized to influence the perception of UPSI undergraduate students is awareness of the Seven Principles for Good Practice in Undergraduate Education. Beginning with this starting point, subsequent observations were then made regarding the degree to which instructional strategies were being effectively used for online learning using variables such as encouraging interaction between students and teaching staff, developing reciprocity and cooperation among students, encouraging active learning, giving prompt feedback, emphasizing time on task, communicating high expectations and finally, respecting talents and diverse ways of learning.

3.3.2 Dependent Variables

On the other hand, dependent variables are simply the outcome or findings of the research (Ary, et al., 2002). The dependent variables that were used to categorize student awareness of the Seven Principles and later capture their expressed perception towards the effectiveness of instructional strategies for online learning are gender, race, the number of semesters students' have experienced online learning, academic

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affiliation, and the utilization level of communicative technology and online resources by teaching staff in delivering learning.

3.4 Research Instrument

The instrument that was used by this research was originally developed by Ehrmann, Gamson and Barsi for the purpose of assessing effective instructional practices and was called the Faculty Inventory (Guidera, 2003). To the researchers' knowledge, the Teaching, Learning & Technology Group (TLT) were spearheading a project called the Flashlight Program, in which the Faculty Inventory and a Student Inventory had been converted for use as a web-based survey. The database for this Internet survey consisted of hundreds of validated items that could be customized for use as a web-based questionnaire.

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In attempting to locally replicate Guidera's research, the researcher wanted to utilize the Student Inventory. However, his attempts were hampered since the Flashlight Program was not readily available locally and required individual or institution level subscription. Thus, it was decided that the Faculty Inventory used by Guidera would be rephrased and adapted for use as a Student Inventory in Malaysia.

Initially, the researcher had to reorganize the questionnaires' items according to the Seven Principles presumably because they had been randomized. Next, the direction and the number of items used by Guidera had to be modified, reduced and reorganized in order to actually address students' perception and not that of teaching staff. This was followed by a reorganization of the questionnaires' presentation as a whole to increase its user-friendliness and comprehensibility. Last of all, the

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researcher had to make connotative and denotative changes to the questionnaires' choice of words to adapt it for local context.

The completed version of the questionnaire was submitted to have its objectivity and content validity evaluated by a panel of experts made up of Dr. Abdul Latif Hj. Gapor (Educational Technology), Dr. Yusop Hashim (Instructional Design) and Dr. Hj. Bhasah Abu Bakar (Research & Measurement) all from the Cognitive Sciences & Human Development Faculty. Subsequently, the questionnaire was then translated from English to Bahasa Melayu and submitted for scrutiny by Dr. Goh Hock Seng (Linguistics) from the Language Faculty.

Table 3.1
A Breakdown of the Questionnaire

Section	Content	Number of Items
a)	Awareness of the 7 Principles	1
b)	Gender	1
c)	Race	1
d)	Semester	1
e)	Faculty	1
f)	Communication & Resource	1
1.	Encouraging Interaction between Students and Teaching Staff	5
2.	Developing Reciprocity and Cooperation among Students	5
3.	Encouraging Active Learning	5
4.	Giving Prompt Feedback	5
5.	Emphasizing Time on Task	4
6.	Communicating High Expectations	5
7.	Respecting Diverse Talents and Ways of Learning	5
	Total	40

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3.4.1 Field Test

The researcher undertook to field test the translated version of the questionnaire "to identify ambiguities, misunderstandings or other inadequacies" (Ary, et al., 2002). The questionnaire was field tested on six students comprising of three male and three female students enrolled in the Research in Instructional Design & Technology course (KPT 6053). Overall, the six Malay graduate students indicated that the questionnaire was adequate and would be able to obtain the desired data. However, feedback from them identified the need to address a few ambiguities and misunderstandings.

Subsequently, corrections were made and the questionnaire was retested again on six non Malay undergraduate students from the Language Faculty's Computer Aided Language Learning course (BIC 1013). The questionnaire was administered to two female Chinese students, two female Indian students, and two female students from other races. They took approximately 30 minutes to fill-in the questionnaire and did not indicate any difficulties, ambiguities, uncertainties or inadequacies.

3.4.2 Pilot Study

In an effort to determine sampling distributions and evaluate the questionnaires' reliability, the researcher conducted a pilot study using 74 students who were taking Instructional Design and Technology (KPT 2063) as a foundation course at the undergraduate level. An *n* close to the upper confines of the central limit theorem was used to "remove doubt about the resultant shape of the sampling distribution" (Bartz, 1999).

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The above mentioned course had 1,656 registered undergraduate students who were organized into twelve groups. Consequently, by utilizing the existing organizational framework and using one group for his pilot sample the researcher did not have to worry about sampling the same student twice.

The findings of the pilot study were analyzed using frequency distributions and Cronbach Alpha's reliability analysis.

3.5 Research Sampling

The researcher began his sampling by coming up with a sample design that detailed the steps to a sampling plan and how sample size was to be determined. In utilizing such a sampling plan the researcher had to initially define the target population. Accordingly, the researcher defined the target population as being that of UPSI undergraduate students. However because of its size, the researcher had to narrow down the target population so as to be able to identify a more accessible sample.

In order to accomplish this, the researcher had to randomly identify sample members (Ary, et al., 2002). Due to the fact that a sampling frame enumerating all the possible participants was difficult to obtain, the researcher instead used a sampling frame of naturally occurring clusters to facilitate sample member identification (Levy & Lemeshow, 1991). Thus, sample members were identified using a two-stage purposive cluster sampling technique (Cochran, 1977; Ary, et al., 2002).

The first sampling frame to be utilized was that of fifth, sixth and seventh semester students who were taking the course Instructional Design and Technology (KPT 2063). Fifth semester students were actually having their first experience with

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online learning within UPSIs' integrated environment, while sixth semester students were well into their second semester. Seventh semester students were those who were suppose to have taken the course earlier but for some reason are taking it just before they head of for their teaching practicum.

The researcher then narrowed down the population further by using a second sampling frame. Sample members from this frame were selected based on their academic affiliation, or in other words from which faculty they were from.

By using Nunnally's rule of thumb, the researcher had already calculated that base on the number of items in the questionnaire the minimum sample size required was 200 students, while the maximum sample size expected was 400 students (Bhasah Abu Bakar, 2003). Due to the fact that surveys require large samples, the researcher opted to use the largest sample size listed in Krejcie & Morgan's (1970) Table for Determining Sample Size from a Given Population. A sample the size of 384 participants from a given population of 100,000 was the target the researcher had set for himself. In the end a sample the size of 397 participants was successfully obtained.

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Table 3.2
Table for Determining Sample Size from a Given Population

N	S	N	S	N	S
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	100000	384

Note:
N is population size
S is sample size

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A comprehensive report of the research's sampling with regards to the frequency and percentage of students according to gender, race, number of semesters they had experienced online learning and faculty affiliation is documented in section 4.2.2 (page 61) of this dissertation.

3.6 Research Location

This research was conducted on campus in Sultan Idris University of Education in Tanjong Malim, Perak, Malaysia. More specifically, the research was conducted within the confines of its lecture halls.

3.7 Research Procedure for Administration of Questionnaire

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The procedure used for administrating the questionnaires was very basic. The questionnaires were directly administered to six groups by the researcher himself with assistance from the teaching staff. Each of these groups was approached at different intervals due to class scheduling. It is approximated that 30 minutes of class time was used.

The main advantage of using this type of procedure was that large samples of participants could easily and quickly be accessed. In addition, it was convenient for accessing clusters of participants within the boundaries of their lecture halls (Ary, et al., 2002). Most importantly, this method was very efficient, and guaranteed high response rates and low financial expenditure. As a matter of fact of the 510 questionnaires distributed, 471 (92.35%) were responded too, with only 21 (4.12%) being unanswered and 18 (3.53%) going missing.

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In retrospect, the disadvantages of this type of procedure in terms of restrictions to when and where the questionnaire could be administered, specificity of the sample, and that the findings could only be used to make generalizations about the population the sample represents have yet to trouble the researcher (Ary, et al., 2002).

3.8 Research Procedure for Data Collection

Once the questionnaires had been completed, the researcher collected them immediately or had students pass them along in order to not disrupt class proceedings. The researcher completed the pilot study and survey concurrently during the final week of the semester beginning from the 26th of March till the 31st of March 2006.

3.9 Research Procedure for Analysis of Data

The data collected by this research was analyzed using the Statistical Package for Social Sciences (SPSS) Version 11 for the PC. Data that had been keyed-in was statistically analyzed using frequency distributions, cross-tabulation, chi-square test for independence or relatedness, one-way analysis of variance (ANOVA) with post-hoc analyses using Tukey's HSD, and Factor Analysis.

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Table 3.3
A Summary of the Statistical Tests that will be used for Analysis of Data

Research Objective	Refer to the following HO & HA	Statistical Test
a. To categorically measure and gauge students' awareness of the Seven Principles for Good Practice in Undergraduate Education.		
i. To determine if student awareness was independent or related to demographic variables.	HO1 & HA1 HO2 & HA2	a. Frequency Distributions b. Cross-tabulation d. Chi-square test for Independence or Relatedness
ii. To determine if the utilization level of communicative technology and online resources by teaching staff was independent or related to student awareness.	HO3 & HA3 HO4 & HA4 HO5 & HA5 HO6 & HA6	a. Frequency Distributions b. Cross-tabulation d. Chi-square test for Independence or Relatedness
b. To study and analyze students' perception towards the effectiveness of instructional strategies for online learning.		
i. To determine if there were differences in perception between fifth, sixth and seventh semester students towards the effectiveness of instructional strategies for online learning.	HO7 & HA7	One-way ANOVA Post hoc: Tukey's HSD
ii. To determine if there were differences in perception between students from different faculties towards the effectiveness of instructional strategies for online learning.	HO8 & HA8	One-way ANOVA Post hoc: Tukey's HSD
c. To verify the validity of the Seven Principles and its items.		Factor Analysis

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CHAPTER 4

ANALYSIS OF DATA

4.1 Introduction

The first part of this chapter reported demographic data pertaining to the pilot study and the research's sampling. This was then followed by a report of the pilot study and research's reliability analysis.

Next, data regarding students' awareness of the Seven Principles for Good Practice in Undergraduate Education and their observation of teaching staff utilization of communicative technology and online resources to convey instructional strategies for online learning was detailed.

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Accordingly, findings with regards to the relationship between student awareness of the Seven Principles and demographic variables such as the number of semesters they had experienced online learning, faculty affiliation, the use of telephone and text messaging, email, forums (MyGuru) and online resources (MyGuru) by teaching staff was reported.

Subsequently, findings in connection with student perception based on the number semesters they had experienced online learning and academic affiliation towards the effectiveness of instructional strategies for online learning was detailed.

Lastly, findings' verifying the validity of the Seven Principles and its items was reported.

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4.2 Demographic Data

4.2.1 Pilot Study

Table 4.1 reports the frequency and percentage of students who participated in the pilot study according to Gender. Of the 74 participants, 25 (33.8%) were Male, while the remaining 49 (66.2%) were Female.

Table 4.1
The Frequency and Percentage of Students according to Gender

Gender	f	%
Male	25	33.8 %
Female	49	66.2 %
Total	74	100 %

Table 4.2 conveys the frequency and percentage of students who participated in the pilot study according to Race. Of the 74 participants, 53 (71.6%) were Malay, while the remaining 21 (28.4%) were Non-Malay.

Table 4.2
The Frequency and Percentage of Students according to Race

Race	f	%
Malay	53	71.6 %
Non-Malay	21	28.4 %
Total	74	100 %

Table 4.3 illustrates the frequency and percentage of students from different semesters who participated in the pilot study. Of the 74 participants, 6 (8.1%) were from semester Five, 62 (83.8%) were from semester Six, while the remaining 6 (8.1%) were from semester Seven.

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Table 4.3
The Frequency and Percentage of Students from different Semesters

Semester	f	%
Five	6	8.1 %
Six	62	62 %
Seven	6	8.1 %
Total	74	100 %

Table 4.4 discloses the frequency and percentage of students from different faculties who participated in the pilot study. Of the 74 participants, 49 (66.2%) were from the Science and Technology Faculty, 16 (21.6%) were from the Information Technology and Communication Faculty, while the remaining 9 (12.2%) were from the Cognitive Sciences and Human Development Faculty.

Table 4.4
The Frequency and Percentage of Students from different Faculties

Faculty	f	%
Science and Technology	49	66.2 %
Information Technology and Communication	16	21.6 %
Cognitive Sciences and Human Development	9	12.2 %
Total	74	100 %

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4.2.2 Research Sampling

Table 4.5 reports the frequency and percentage of students who participated in the actual research according to Gender. Of the 397 participants, 75 (18.9%) were Male, while the remaining 322 (81.1%) were Female.

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Table 4.5
The Frequency and Percentage of Students according to Gender

Gender	f	%
Male	75	18.9 %
Female	322	81.1 %
Total	397	100 %

Table 4.6 conveys the frequency and percentage of students who participated in the actual research according to Race. Of the 397 participants, 368 (92.7%) were Malay, while the remaining 29 (7.3%) were Non-Malay.

Table 4.6
The Frequency and Percentage of Students according to Race

Race	f	%
Malay	368	92.7 %
Non-Malay	29	7.3 %
Total	397	100 %

Table 4.7 illustrates the frequency and percentage of students from different semesters who participated in the actual research. Of the 397 participants, 99 (24.9%) were from semester Five, 283 (71.3%) were from semester Six, while the remaining 15 were from semester Seven (3.8%).

Table 4.7
The Frequency and Percentage of Students from different Semesters

Semester	f	%
Five	99	24.9 %
Six	283	71.3 %
Seven	15	3.8 %
Total	397	100 %

Table 4.8 discloses the frequency and percentage of students from different faculties who participated in the actual research. Of the 397 participants, 9 (2.3%) were from the Language Faculty, 207 (52.1%) were from the Science and Technology Faculty, 54 (13.6%) were from the Social Science and Humanities Faculty, 32 (8.1%)

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were from the Information Technology and Communication Faculty, while the remaining 95 (23.9) were from the Cognitive Sciences and Human Development Faculty.

Table 4.8
The Frequency and Percentage of Students from different Faculties

Faculty	f	%
Language	9	2.3 %
Science and Technology	207	52.1 %
Social Science and Humanities	54	13.6 %
Information Technology and Communication	32	8.1 %
Cognitive Sciences and Human Development	95	23.9 %
Total	397	100 %

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4.3 Reliability Analysis

When using reliability analysis, a researcher can ascertain to what extent a questionnaire's items are related to each other. In fact, an overall index of the repeatability or internal consistency of the instrument as a whole can be obtained. Based on such information, problem items can be identified for exclusion from the questionnaire (Coakes & Lyndall, 2003).

For the pilot study, a high index ($\alpha = 0.97$, $n = 74$) was obtained for Cronbach's Alpha reliability analysis. As for the research's sampling, a slightly lower index, but still judged to be high ($\alpha = 0.94$, $N = 397$) was obtained. No items were identified to be problematic and required omission. Thus, it can be rationalized that the questionnaire utilized was valid and reliable.

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4.4 Students' Awareness of the Seven Principles for Good Practice in Undergraduate Education

Table 4.9 expresses the frequency and percentage for student's awareness of the Seven Principles for Good Practice in Undergraduate Education. Of the 397 participants, 16 (4%) indicated 'yes' they were aware of the principles, while the remaining 381 (96%) indicated 'no' they were not aware of the Seven Principles.

Table 4.9
The Frequency and Percentage for Student's Awareness of the Seven Principles

Awareness	f	%
Yes	16	4 %
No	381	96 %
Total	397	100 %

Table 4.10 describes the frequency and percentage for telephone and text messaging utilization by teaching staff to convey instructional strategies for online learning. Of the 397 participants, 52 (13.1%) indicated 'yes' that teaching staff who were teaching them used either telephone or text messaging, while the remaining 345 (86.9%) indicated 'no' that teaching staff did not use either of these communicative tool.

Table 4.10
The Frequency and Percentage for Telephone and SMS utilization by Teaching Staff

PhoneSMS	f	%
Yes	52	13.1 %
No	345	86.9 %
Total	397	100 %

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Table 4.11 reveals the frequency and percentage for email utilization by teaching staff to convey instructional strategies for online learning. Of the 397 participants, 86 (21.7%) indicated 'yes' that teaching staff who were teaching them used email, while the remaining 311 (78.3%) indicated 'no' that teaching staff did not use this type of communicative tool.

Table 4.11
The Frequency and Percentage for Email utilization by Teaching Staff

Email	f	%
Yes	86	21.7 %
No	311	78.3 %
Total	397	100 %

Table 4.12 illustrates the frequency and percentage for forum (MyGuru) utilization by teaching staff to convey instructional strategies for online learning. Of the 397 participants, 373 (94%) indicated 'yes' that teaching staff who were teaching them used forums, while the remaining 24 (6%) indicated 'no' that teaching staff did not use this type of communicative tool.

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Table 4.12
The Frequency and Percentage for Forum (MyGuru) utilization by Teaching Staff

Forum	f	%
Yes	373	94 %
No	24	6 %
Total	397	100 %

Table 4.13 discloses the frequency and percentage for learning material (MyGuru) utilization by teaching staff to convey instructional strategies for online learning. Of the 397 participants, 179 (45.1%) indicated 'yes' that teaching staff who were teaching them used learning materials for online learning, while the remaining 218 (54.9%) indicated 'no' that teaching staff did not use this type of online resource.

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Table 4.13
The Frequency and Percentage for Learning Material (MyGuru) utilization by Teaching Staff

Material	f	%
Yes	179	45.1 %
No	218	54.9 %
Total	397	100 %

4.5 The Relationship between Student Awareness and Demographic Variables

Table 4.14 reports that student awareness of the Seven Principles was independent or not related to the number of semesters students' had experienced online learning; χ^2 (2, n = 397) = 0.91[a], p> 0.05. Thus, the nol hypothesis (H01).of there was statistically no significant relationship between the number of semesters students' had experienced online learning and their awareness of the Seven Principles was retained.

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Table 4.14 also reveals that student awareness of the Seven Principles was independent or not related to faculty affiliation; χ^2 (4, n = 397) = 3.91[a], p> 0.05. Therefore, the nol hypothesis (H02) of there was statistically no significant relationship between faculty affiliation and student awareness of the Seven Principles was also retained.

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Table 4.14
Chi-Square Test of Independence or Relatedness between Student Awareness and Demographic Variables

The Relationship between Student Awareness and Demographic Variables	Chi-Square Test of Independence or Relatedness		
	Value	df	Asymp. Sig. (2-sided)
a. Gender	0.000[b]	1	0.988
b. Race	0.665[b]	1	0.415
c. Number of Semesters at the University	0.911[a]	2	0.634
d. Faculty Affiliation	3.913[a]	4	0.418

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 3.02.
b. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 1.17.
c. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 0.60.
d. 4 cells (40.0%) have expected count less than 5. The minimum expected count is 0.36.

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4.6 The Relationship between Student Awareness and the Utilization Level of Communicative Technology and Online Resources by Teaching Staff

Table 4.15 discloses that the utilization level of communicative technology such as telephone and text messaging; χ^2 (1, n = 397) = 0.00[b], p> 0.05, email; χ^2 (1, n = 397) = 0.08[b], p> 0.05, forum; χ^2 (1, n = 397) = 1.22[b], p> 0.05, and online resources for example learning materials; χ^2 (1, n = 397) = 0.01[b], p> 0.05, by teaching staff was also independent or not related to the variable of student awareness. Thus, the nol hypotheses (H03, H04, H05 & H06) of there was statistically no significant relationship between the use of telephone and text messaging (SMS), email, forum and online resources by teaching staff, and student awareness of the Seven Principles were all retained.

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Table 4.15
Chi-Square Test of Independence or Relatedness between Student Awareness and the Utilization Level of Communicative Technology and Online Resources by Teaching Staff

The Relationship between Student Awareness and the Utilization Level of Communicative Technology and Online Resources by Teaching Staff	Chi-Square Test of Independence or Relatedness		
	Value	df	Asymp. Sig. (2-sided)
a. PhoneSMS	0.005[b]	1	0.942
b. Email	0.083[b]	1	0.773
c. Forum	1.223[b]	1	0.269
d. Material	0.012[b]	1	0.913

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 2.10.
b. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 3.47.
c. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 0.97.
d. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 7.21.

4.7 The Difference in Perception towards the Effectiveness of Instructional Strategies for Online Learning between Students from Different Semesters and Faculties

Table 4.16 reveals that the results of a comparative test using One-way between groups ANOVA indicated significant differences between student perception towards the effectiveness of instructional strategies for online learning among fifth, sixth and seventh semester students, $F(2, 394) = 10.46$, $p < 0.05$. Thus, the nol hypothesis (H07) was rejected, and the alternative hypothesis (HA7) of there was statistically a significant difference between the perceptions of fifth, sixth and seventh

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semester students, towards the effectiveness of instructional strategies for online learning was accepted.

However, a serendipitous discovery was made for Principle Seven (P7), *Respecting Diverse Talents and Ways of Learning* (Ary, et al., 2002). It was discovered that for P7 there was no significant difference between student perception towards the effectiveness of instructional strategies for online learning among fifth, sixth and seventh semester students, $F(2, 394) = 2.83$, $p > 0.05$. Nevertheless, before this unhypothesized relationship can be considered connected to the main investigation it should be made the subject of a later study specifically designed to investigate it (Ary, et al., 2002).

Table 4.16
One-way ANOVA between Perception based on the Seven Principles and Students from Different Semesters

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		Sum of Squares	df	Mean Square	F	Sig.
P1	Between Groups	170.939	2	85.470	7.192	0.001
	Within Groups	4681.988	394	11.883		
	Total	4852.927	396			
P2	Between Groups	330.215	2	165.108	13.733	0.000
	Within Groups	4737.014	394	12.023		
	Total	5067.229	396			
P3	Between Groups	254.965	2	127.483	10.890	0.000
	Within Groups	4612.178	394	11.706		
	Total	4867.144	396			
P4	Between Groups	172.614	2	86.307	6.409	0.002
	Within Groups	5305.679	394	13.466		
	Total	5478.292	396			
P5	Between Groups	79.964	2	39.982	5.016	0.007
	Within Groups	3140.233	394	7.970		
	Total	3220.196	396			
P6	Between Groups	106.446	2	53.223	4.119	0.017
	Within Groups	5090.496	394	12.920		
	Total	5196.942	396			

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P7	Between Groups	86.461	2	43.231	2.830	0.060
	Within Groups	6017.987	394	15.274		
	Total	6104.448	396			
TOTAL	Between Groups	7581.113	2	3790.557	10.458	0.000
	Within Groups	142813.81	394	362.472		
	Total	150394.92	396			

$p < 0.05$

Table 4.17 discloses that the homogeneity assumption was not violated under any circumstance. Levene's test for homogeneity of variances was not significant ($p > 0.05$). Thus, population variances for each group are approximately equal (Coakes & Lyndall, 2003).

Table 4.17
Test of Homogeneity of Variances for One-way ANOVA between Perception and Students from Different Semesters

	Levene Statistic	df1	df2	Sig.
P1	2.206	2	394	0.112
P2	0.506	2	394	0.603
P3	2.608	2	394	0.075
P4	1.040	2	394	0.354
P5	2.107	2	394	0.123
P6	1.928	2	394	0.147
P7	1.277	2	394	0.280
TOTAL	2.101	2	394	0.124

Table 4.18 illustrates that a post-hoc analyses using Tukey's HSD indicated that the average perception among students was higher for seventh semester students (M = 114.33, SD = 13.92), followed by sixth (M = 102.17, SD = 18.45) and fifth semester students (M = 94.20, SD = 21.23).

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Table 4.18

Tukey HSD for One-way ANOVA between Perception and Students from Different Semesters

Dependent Variable	(I) Semester	(J) Semester	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Total	5	6	-7.9711*	2.22309	0.001	-13.2012	-2.7411
		7	-20.1313*	5.27505	0.000	-32.5414	-7.7212
	6	5	7.9711*	2.22309	0.001	2.7411	13.2012
		7	-12.1602*	5.04436	0.043	-24.0276	-0.2928
	7	5	20.1313*	5.27505	0.000	7.7212	32.5414
		6	12.1602*	5.04436	0.043	0.2928	24.0276

* The mean difference is significant at the 0.05 level

Based on the five point Likert scale utilized to capture the expressed perception of UPSI undergraduate students, averages ranging from 0-34 was to be considered "ineffective," 35-68 "less effective," 69-102 "effective," 103-136 "marginally effective," and 137-170 "considerably effective." Thus, the mean for seventh semester students (M = 114.33) was interpreted as being "marginally effective," while the mean for sixth (M = 102.17) and fifth semester students (M = 94.20) was construed as being "effective."

However, in Table 4.19 a descriptive analysis breaks down students' perception by way of the Seven Principles revealing that at that level the average perception towards the effectiveness of instructional strategies for online learning was actually "ineffective." Nevertheless, once the mean was collectively totaled the average perception level rose to that of being "effective" (M = 100.64, SD = 19.49).

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Table 4.19
Descriptives for One-way ANOVA between Perception and Students from Different Semesters

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval	
						Lower Bound	Upper Bound
P1	5	99	12.7980	3.65608	0.36745	12.0688	13.5272
	6	283	13.8975	3.42085	0.20335	13.4973	14.2978
	7	15	16.0000	2.26779	0.58554	14.7441	17.2559
	Total	397	13.7028	3.50070	0.17569	13.3574	14.0482
P2	5	99	14.3232	3.71107	0.37298	13.5831	15.0634
	6	283	16.0954	3.36251	0.19988	15.7020	16.4889
	7	15	18.2667	3.76955	0.97329	16.1792	20.3542
	Total	397	15.7355	3.57715	0.17953	15.3826	16.0885
P3	5	99	14.1313	3.86942	0.38889	13.3596	14.9031
	6	283	15.8834	3.30653	0.19655	15.4965	16.2703
	7	15	16.8667	2.09989	0.54219	15.7038	18.0295
	Total	397	15.4836	3.50582	0.17595	15.1377	15.8295
P4	5	99	12.7071	3.42337	0.34406	12.0243	13.3898
	6	283	13.7102	3.78980	0.22528	13.2668	14.1537
	7	15	16.0667	2.76371	0.71359	14.5362	17.5972
	Total	397	13.5491	3.71942	0.18667	13.1821	13.9161
P5	5	99	11.5859	2.65349	0.26669	11.0566	12.1151
	6	283	12.2120	2.92172	0.17368	11.8701	12.5539
	7	15	13.9333	1.75119	0.15216	12.9636	14.9031
	Total	397	12.1209	2.85163	0.14312	11.8395	12.4023
P6	5	99	14.5354	4.00844	0.40286	13.7359	15.3348
	6	283	15.3004	3.43505	0.20419	14.8984	15.7023
	7	15	17.2000	3.66840	0.94718	15.1685	19.2315
	Total	397	15.1814	3.62265	0.18182	14.8239	15.5388
P7	5	99	14.1212	4.33136	0.43532	13.2573	14.9851
	6	283	15.0742	3.78568	0.22504	14.6312	15.5172
	7	15	16.0000	3.13961	0.81064	14.2613	17.7387
	Total	397	14.8715	3.92623	0.19705	14.4841	15.2589
Total	5	99	94.2020	21.22570	2.13326	89.9686	98.4354
	6	283	102.1731	18.44568	1.09648	100.0148	104.3315
	7	15	114.3333	13.92155	3.59453	106.6238	122.0428
	Total	397	100.6448	19.48808	0.97808	98.7220	102.5677

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Table 4.20 is of a second comparative test using One-way between groups ANOVA revealing significant differences between the perception of students from different faculties, $F(4,392) = 8.52$, $p < 0.05$. Thus, the nol hypothesis (H08) was rejected, and the alternative hypothesis (HA8) of there was statistically a significant difference between the perceptions of students from different faculties, towards the effectiveness of instructional strategies for online learning was accepted.

Table 4.20
One-way ANOVA between Perception based on the Seven Principles and Students from Different Faculties

		Sum of Squares	df	Mean Square	F	Sig.
P1	Between Groups	319.611	4	79.903	6.909	0.000
	Within Groups	4533.316	392	11.565		
	Total	4852.927	396			
P2	Between Groups	412.530	4	103.133	8.685	0.000
	Within Groups	4654.699	392	11.874		
	Total	5067.229	396			
P3	Between Groups	350.650	4	87.662	7.608	0.000
	Within Groups	4516.494	392	11.522		
	Total	4867.144	396			
P4	Between Groups	277.357	4	69.339	5.226	0.000
	Within Groups	5200.935	392	13.268		
	Total	5478.292	396			
P5	Between Groups	112.203	4	28.051	3.538	0.007
	Within Groups	3107.994	392	7.929		
	Total	3220.196	396			
P6	Between Groups	277.461	4	69.365	5.527	0.000
	Within Groups	4919.481	392	12.550		
	Total	5196.942	396			
P7	Between Groups	255.794	4	63.948	4.286	0.002
	Within Groups	5848.655	392	14.920		
	Total	6104.448	396			
TOTAL	Between Groups	12028.138	4	3007.034	8.519	0.000
	Within Groups	138366.78	392	352.976		
	Total	150394.92	396			

$p < 0.05$

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Table 4.21 illustrates that the homogeneity assumption was not violated under any circumstance. Levene's test for homogeneity of variances was not significant ($p > 0.05$). Thus, population variances for each group are approximately equal (Coakes & Lyndall, 2003).

Table 4.21
Test of Homogeneity of Variances for One-way ANOVA between Perception and Students from Different Faculties

	Levene Statistic	df1	df2	Sig.
P1	0.913	4	392	0.456
P2	0.291	4	392	0.884
P3	0.969	4	392	0.424
P4	1.638	4	392	0.164
P5	1.283	4	392	0.276
P6	1.460	4	392	0.214
P7	1.350	4	392	0.251
Total	1.339	4	392	0.255

$p > 0.05$

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Table 4.22 discloses that a post-hoc analyses using Tukey's HSD indicated that the average perception for students from the Language Faculty ($M = 113.33$, $SD = 15.35$) was highest, followed by that of students from the Information Technology and Communication Faculty ($M = 107.41$, $SD = 17.69$), Science and Technology Faculty ($M = 103.93$, $SD = 18.47$), Social Science and Humanities Faculty ($M = 94.54$, $SD = 16.77$) and, Cognitive Sciences and Human Development Faculty ($M = 93.48$, $SD = 21.03$).

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Table 4.22
Tukey HSD for One-way ANOVA between Perception and Students from Different Faculties

Dependent Variable	(I) Faculty	(J) Faculty	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Total	Lang.	Science & Tech.	9.4058	6.39725	0.582	-8.1260	26.9376
		Social Sciences & Humanities	18.7963*	6.76433	0.045	0.2585	37.3341
		Info. Tech & Comm.	5.9271	7.08873	0.919	-13.4997	25.3539
		Cogntv Sciences & Human Dev.	19.8491*	6.55249	0.022	1.8919	37.8063
	Science & Tech.	Lang.	-9.4058	6.39725	0.582	-26.9376	8.1260
		Social Sciences & Humanities	9.9305*	2.87085	0.010	1.5229	17.2581
		Info. Tech & Comm.	-3.4787	3.56871	0.866	-13.2588	6.3014
		Cogntv Sciences & Human Dev.	10.4433*	2.32825	0.000	4.0627	16.8239
	Social Sciences & Humanities	Lang.	-18.7963*	6.76433	0.045	-37.3341	-0.2585
		Science & Tech.	-9.3905*	2.87085	0.10	-17.2581	-1.5229
		Info. Tech & Comm.	-12.8692*	4.19131	0.019	-24.3556	-1.3828
		Cogntv Sciences & Human Dev.	1.0528	3.20190	0.997	-7.7220	9.8277

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Dependent Variable	(I) Faculty	(J) Faculty	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
	Info. Tech & Comm.	Lang.	-5.9271	7.08873	0.919	-25.3539	13.4997
		Science & Tech.	3.4748	3.56871	0.866	-6.3014	13.2588
		Social Sciences & Humanities	12.8692*	4.19131	0.019	1.3828	24.3556
		Cogntv Sciences & Human Dev.	13.9220*	3.84006	0.003	3.3983	24.4458
	Cogntv Sciences & Human Dev.	Lang.	-19.8491*	6.55249	0.022	-37.8063	-1.8919
		Science & Tech.	-10.4433*	2.32825	0.000	-16.8239	-4.0627
		Social Sciences & Humanities	-1.0528	3.20190	0.997	-9.8277	7.7220
		Info. Tech & Comm.	-13.9220*	3.84006	0.003	-24.4458	-3.3983

* The mean difference is significant at the 0.05 level

As mentioned earlier averages ranging from 0-34 was to be considered "ineffective," 35-68 "less effective," 69-102 "effective," 103-136 "marginally effective," and 137-170 "considerably effective." Thus, the mean for students from the Language Faculty (M = 113.33), Information Technology and Communication Faculty (M = 107.41), and Science and Technology Faculty (M = 103.93) was construed as being "marginally effective," while the mean for students from the Social Science and Humanities Faculty (M = 94.54), and Cognitive Sciences and Human Development Faculty (M = 93.48) was interpreted as being "effective."

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Yet again, in Table 4.23 a descriptive analysis breaks down students' perception by way of the Seven Principles revealing that at that level the average perception towards the effectiveness of instructional strategies for online learning was also "ineffective." Nonetheless, once the mean was collectively totaled the average perception level again rose to that of being "effective" ($M = 100.64$, $SD = 19.49$).

Table 4.23
Descriptives for One-way ANOVA between Perception and Students from Different Faculties

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval	
						Lower Bound	Upper Bound
P1	Lang.	9	17.1111	3.98260	1.32753	14.0498	20.1724
	Science & Tech.	207	14.0676	3.33636	0.23189	13.6104	14.5248
	Social Sciences & Humanities	54	13.1481	3.01823	0.41073	12.3243	13.9720
	Info. Tech & Comm.	32	14.8125	3.35470	0.59303	13.6030	16.0220
	Cogntv Sciences & Human Dev.	95	12.5263	3.69255	0.37885	11.7741	13.2785
	Total	397	13.7028	3.50070	0.17569	13.3574	14.0482
P2	Lang.	9	17.0000	3.80789	1.26930	14.0730	19.9270
	Science & Tech.	207	16.3671	3.28877	0.22859	15.9165	16.8178
	Social Sciences & Humanities	54	15.0370	3.26770	0.44468	14.1451	15.9289
	Info. Tech & Comm.	32	17.0938	3.65760	0.64658	15.7750	18.4125
	Cogntv Sciences & Human Dev.	95	14.1789	3.76145	0.38592	13.4127	14.9452
	Total	397	15.7355	3.57715	0.17953	15.3826	16.0885

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		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval	
						Lower Bound	Upper Bound
P3	Lang.	9	16.6667	2.29129	0.76376	14.9054	18.4279
	Science & Tech.	207	16.1691	3.28654	0.22843	15.7187	16.6194
	Social Sciences & Humanities	54	14.9259	3.47417	0.47278	13.9777	15.8742
	Info. Tech & Comm.	32	16.0938	2.91115	0.51462	15.0442	17.1433
	Cogntv Sciences & Human Dev.	95	13.9895	3.78546	0.38838	13.2183	14.7606
	Total	397	15.4836	3.50582	0.17595	15.1377	15.8295
P4	Lang.	9	16.0000	1.87083	0.62361	14.5620	17.4380
	Science & Tech.	207	13.8213	3.85690	0.26807	13.2927	14.3498
	Social Sciences & Humanities	54	12.9630	3.58173	0.48741	11.9853	13.9406
	Info. Tech & Comm.	32	15.1875	3.47746	0.61473	13.9337	16.4413
	Cogntv Sciences & Human Dev.	95	12.5053	3.34815	0.34351	11.8232	13.1873
	Total	397	13.5491	3.71942	0.18667	13.1821	13.9161
P5	Lang.	9	13.0000	2.00000	0.66667	11.4627	14.5373
	Science & Tech.	207	12.4010	2.98842	0.20771	11.9915	12.8105
	Social Sciences & Humanities	54	11.3333	2.54024	0.34568	10.6400	12.0267
	Info. Tech & Comm.	32	13.0313	2.74137	0.48461	12.0429	14.0196
	Cogntv Sciences & Human Dev.	95	11.5684	2.65239	0.27213	11.0281	12.1087
	Total	397	12.1209	2.85163	0.14312	11.8395	12.4023

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Continuation

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval	
						Lower Bound	Upper Bound
P6	Lang.	9	17.6667	2.87228	0.95743	15.4588	19.8745
	Science & Tech.	207	15.6860	3.37652	0.23468	15.2233	16.1487
	Social Sciences & Humanities	54	13.5370	3.24306	0.44133	12.6519	14.4222
	Info. Tech & Comm.	32	15.4063	3.92559	0.69395	13.9909	16.8216
	Cogntv Sciences & Human Dev.	95	14.7053	3.95419	0.40569	13.8998	15.5108
	Total	397	15.1814	3.62265	0.18182	14.8239	15.5388
P7	Lang.	9	15.8889	2.31541	2.31541	14.1091	17.6687
	Science & Tech.	207	15.4155	3.68694	3.68694	14.9102	15.9207
	Social Sciences & Humanities	54	13.5926	3.88280	3.88280	12.5328	14.6524
	Info. Tech & Comm.	32	15.7813	3.92547	3.92457	14.3663	17.1962
	Cogntv Sciences & Human Dev.	95	14.0105	4.28876	4.28876	13.1369	14.8842
	Total	397	14.8715	3.92623	3.92623	14.4841	15.2589
Total	Lang.	9	113.3333	15.35415	5.11805	101.5311	125.1356
	Science & Tech.	207	103.9275	18.47012	1.28376	101.3965	106.4585
	Social Sciences & Humanities	54	94.5370	16.77455	2.28273	89.9585	99.1156
	Info. Tech & Comm.	32	107.4063	17.68881	3.12697	101.0288	113.7837
	Cogntv Sciences & Human Dev.	95	93.4842	21.03486	2.15813	89.1992	97.7692
	Total	397	100.6448	19.48808	0.97808	98.7220	102.5677

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4.8 The Validity of the Seven Principles and its Items

An exploratory factor analysis was conducted to verify the validity of the intangible constructs that constitute the theoretical framework of the Seven Principles that, if used as instructional strategies, might facilitate the manifestation of online learning. A sample size of 397 participants more than meets the desired case-to-variables ratio for Principal Components Analysis (Coakes & Lyndall, 2003). Findings revealed that the Bartlett test of sphericity was significant ($\chi^2 = 6255.204$, $p < 0.05$) and that the Kaiser-Meyer-Olkin measure of sampling adequacy was very high (KMO = 0.93), (Ahmad Mahdzan Ayob, 2005).

Table 4.24
Results for Kaiser-Meyer-Olkin (KMO) and Bartlett's Tests

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.930
Bartlett's Test of Sphericity	Approx. Chi-Square	6255.204
	df	561
	Sig.	0.000

Results of Total Variance Explained after Varimax Rotation using a factor loading of 0.4, instead of the 0.3 computer default on which theories are often based upon indicated that there are indeed Seven Principles with all of them having eigenvalues greater than 1, (P1 = 4.58, P2 = 3.36, P3 = 3.18, P4 = 2.66, P5 = 2.58, P6 = 2.05 and P7 = 1.97), (Bhasah Abu Bakar, 2003).

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Table 4.25
Results for Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	11.706	34.429	34.429	11.706	32.429	34.429
2	2.225	6.545	40.974	2.225	6.545	40.974
3	1.667	4.902	45.876	1.667	4.902	45.876
4	1.445	4.251	50.127	1.445	4.251	50.127
5	1.237	3.639	53.766	1.237	3.639	53.766
6	1.107	3.257	57.023	1.107	3.257	57.023
7	1.001	2.944	59.967	1.001	2.944	59.967
8	0.967	2.844	62.811			
9	0.860	2.528	65.339			
10	0.843	2.481	67.820			
11	0.769	2.263	70.083			
12	0.741	2.180	72.263			
13	0.712	2.093	74.356			
14	0.676	1.988	76.344			
15	0.620	1.824	78.168			
16	0.584	1.717	79.885			
17	0.553	1.626	81.511			
18	0.527	1.549	83.060			
19	0.499	1.469	84.530			
20	0.488	1.436	85.966			
21	0.460	1.353	87.319			
22	0.451	1.326	88.644			
23	0.427	1.255	89/899			
24	0.401	1.179	91.077			
25	0.386	1.134	92.212			
26	0.365	1.072	93.284			
27	0.352	1.036	94.320			
28	0.341	1.002	95.322			
29	0.322	0.948	96.270			
30	0.301	0.884	97.154			
31	0.265	0.780	97.934			
32	0.246	0.725	98.659			
33	0.236	0.695	99.354			
34	0.220	0.646	100.00			

Extraction Method: Principal Components Analysis

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Table 4.26
Results for Total Variance Explained after Varimax Rotation

Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	4.578	13.465	13.465
2	3.364	9.895	23.360
3	3.184	9.364	32.724
4	2.664	7.834	40.558
5	2.585	7.603	48.161
6	2.046	6.018	54.179
7	1.968	5.788	59.967

A visual inspection of the Scree Plot, confirms the number of Components with Eigenvalues greater than 1.

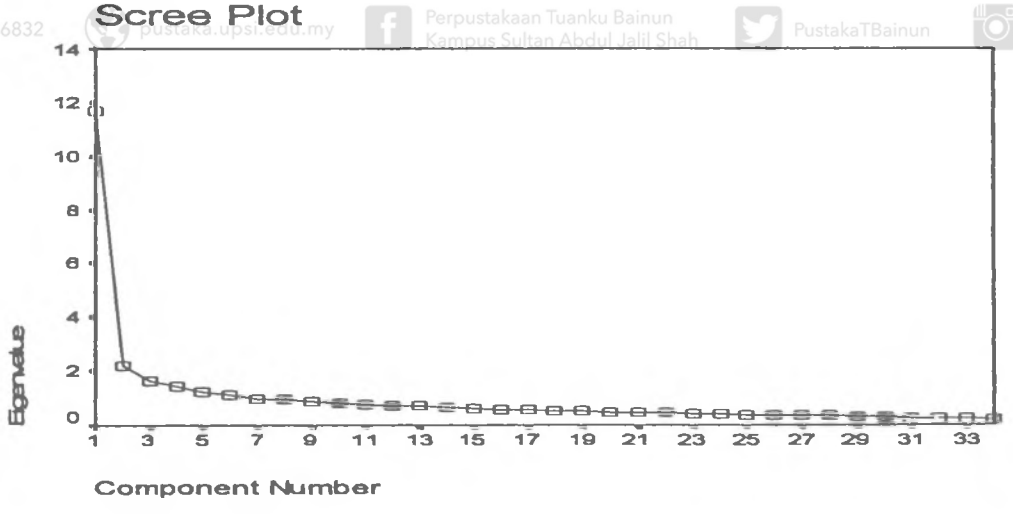


Diagram 4.1: A Scree Plot Illustrating the Number of Components with Eigenvalues greater than 1

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Lastly, an analysis of the rotated component matrix revealed that of the 34 items used, 23 are pure variables, while the remaining 11 are complex variables. However, these complex variables did not have high factor loadings that made their interpretation difficult. In the next chapter, another table is used to clearly illustrate how these items are interpreted and subsequently reorganized.

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Table 4.27
Rotated Component Matrix

	Component						
	1	2	3	4	5	6	7
P1.1					0.700		
P1.2					0.779		
P1.3					0.699		
P1.4	0.473				0.382		-0.315
P1.5	0.381		0.305		0.355		
P2.1			0.644				
P2.2			0.571				
P2.3			0.632				
P2.4			0.714				
P2.5			0.335	0.325	0.311	0.333	
P3.1						0.685	
P3.2						0.748	
P3.3			0.438			0.315	
P3.4			0.614				
P3.5	0.621						
P4.1	0.515						
P4.2	0.649						
P4.3	0.646						
P4.4	0.621						
P4.5	0.627						
P5.1			0.361				0.579
P5.2	0.368						0.479
P5.3	0.429						0.473
P5.4				0.403			0.614
P6.1				0.555			
P6.2	0.621						
P6.3				0.773			
P6.4				0.802			
P6.5	0.488			0.423			
P7.1		0.550					
P7.2		0.714					
P7.3	0.310	0.730					
P7.4	0.307	0.779					
P7.5		0.678					

Extraction method: Principal Component Analysis
Rotation Method: Varimax with Kaiser Normalization
a. Rotation converged in 8 iterations

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CHAPTER 5

DISCUSSIONS, SUGGESTIONS & CONCLUSION

5.1 Introduction

Initially this chapter discusses students' awareness of the Seven Principles for Good Practice in Undergraduate Education. Next, it discusses student perception towards the effectiveness of instructional strategies for online learning. Subsequently, it verifies the validity of the Seven Principles, its items, and their reliability when used as a questionnaire. Suggestions are then made by the researcher based on research findings followed by a conclusion that brings the research to a close.

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5.2 Discussion regarding Students' Awareness of the Seven Principles for Good Practice in Undergraduate Education

Of the 397 participants regardless of race, gender, number of semesters they had experienced online learning, or faculty affiliation, an overwhelming 381 (96%) indicated 'no' they were not aware of the principles and only 16 (4%) indicated 'yes' they were aware of the Seven Principles. Perhaps it would be safe to rationalize that as a whole, UPSI undergraduate students were simply not aware of the Seven Principles for Good Practice in Undergraduate Education. Any claim made contrary to the fact, probably occurred purely by chance.

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As for the utilization of communicative technology and online resources by teaching staff, 345 (86.9%) participants indicated 'no' that teaching staff did not use either telephone or text messaging to convey instructional strategies for online learning. Only 52 (13.1%) indicated 'yes' that teaching staff used either of these communicative tools. The same can also be said for email utilization by teaching staff. 311 (78.3%) participants indicated 'no' that teaching staff did not use this type of communicative tool, and only 86 (21.7%) indicated 'yes' that teaching staff used email. Thus, it could be conceivable that the utilization level of telephone, text messaging and email by UPSI teaching staff to encourage communication and interaction with and among students was relatively low.

The same cannot be said however for forum (MyGuru) utilization by teaching staff. Of the 397 participants, 373 (94%) indicated 'yes' that teaching staff who were teaching them used forums, while only 24 (6%) indicated 'no' that teaching staff did not do so. Perhaps this has something to do with the fact that teaching staff are required by the university's administration to incorporate the use of forums, to be exact the MyGuru Integrated Management System (IMS), into their instructional repertoire.

As for online resource (MyGuru) utilization by teaching staff, 179 (45.1%) participants indicated 'yes' that teaching staff who were teaching them did use learning materials, while the remaining 218 (54.9%) indicated 'no' that teaching staff did not do so. The reason for this mixed bag could possibly be because some teaching staff readily had learning materials that could be uploaded onto MyGuru as online resources, whereas others might have limited or possibly no material whatsoever. Students would only be interested in accessing, and in all probability do so repeatedly, online resources that were useful and beneficial to them.

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5.3 Discussion regarding Student Perception towards the Effectiveness of Instructional Strategies for Online Learning

Findings revealed significant differences between student perception among fifth, sixth and seventh semester students. In brief, the average perception of seventh semester students was highest (M = 114.33, SD = 13.92), followed by sixth (M = 102.17, SD = 18.45) and subsequently fifth semester students (M = 94.20, SD = 21.23).

Possibly, there was a direct relationship between the number of semesters students' had experienced online learning and their perception towards the effectiveness of instructional strategies for online learning. However, further research might be required to validate this notion as a fact due to the limited number of participants obtained for semester seven (n = 15).

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As for the perception of students from different faculties, findings revealed that the average perception for students from the Language Faculty (M = 113.33, SD = 15.35) was highest, followed by students from the Information Technology and Communication Faculty (M = 107.41, SD = 17.69), Science and Technology Faculty (M = 103.93, SD = 18.47), Social Science and Humanities Faculty (M = 94.54, SD = 16.77) and, Cognitive Sciences and Human Development Faculty (M = 93.48, SD = 21.03).

Yet again there was the possibility that a direct relationship exists between faculty affiliation and students' perception towards the effectiveness of instructional strategies for online learning. However, further research is again necessary to validate this notion as a fact due to the limited number of participants obtained from the

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Language Faculty ($n = 9$). Nonetheless, if the findings for students from the Language Faculty were to be removed, then the average perception for students from the Information Technology and Communication Faculty would come out tops, followed by the average perception of students from the Science and Technology Faculty, Social Science and Humanities Faculty and lastly the Cognitive Sciences and Human Development Faculty.

5.4 Discussion regarding the Validity of the Seven Principles and the Reliability of its Items

Findings from the exploratory factor analysis conducted verify the validity of the intangible constructs that constitute the theoretical framework of the Seven Principles. There are indeed Seven Principles for Good Practice in Undergraduate Education. Further analysis of the rotated component matrix revealed that of the 34 items used, 23 were pure variables, while the remaining 11 were complex variables. The following table illustrates a clearer picture of how these items were interpreted and subsequently reorganized.

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Table 5.1
Revised Questionnaire

1.1	**ENCOURAGING INTERACTION BETWEEN STUDENTS AND TEACHING STAFF (USING COMMUNICATIVE TECHNOLOGIES)**	**Factor Loading**
1.1.1	Teaching staff attempting to communicate with you.	0.779
1.1.2	Teaching staff attempting to facilitate informal interaction with you.	0.700
1.1.3	Teaching staff attempting to serve as a mentor to you.	0.699
1.2	**PROVODING SUPPORT FOR ENCOURAGING INTERACTION BETWEEN STUDENTS AND TEACHING STAFF (USING COMMUNICATIVE TECHNOLOGIES)**	
1.2.1	Teaching staff attempting to contact you when you have fallen behind to discuss study habits, schedules, and other commitments.	0.473
1.2.2	Teaching staff attempting to provide extra material or exercises if you lack the essential background knowledge or skills.	0.381

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2.	**DEVELOPING RECIPROCITY AND COOPERATION AMONG STUDENTS (USING COMMUNICATIVE TECHNOLOGIES)**	**Factor Loading**
2.1	Teaching staff attempting to get you to explain difficult ideas or concepts to others within an online learning group.	0.714
2.2	Teaching staff promising extra credit to you for participating in online activities.	0.644
2.3	Teaching staff attempting to get you to discuss openly with colleagues through a forum about interests and backgrounds.	0.632
2.4	Teaching staff attempting to utilize the IMS (Integrated Management System) to nurture learning groups or project teams in your course.	0.571
2.5	Teaching staff attempting to get you and your colleagues to work on projects together.	0.335

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Continuation

3.1	**ENCOURAGING ACTIVE LEARNING (USING COMMUNICATIVE TECHNOLOGIES)**	**Factor Loading**
3.1.1	Teaching staff attempting to encourage you to express yourself when you don't understand a particular subject matter.	0.614
3.1.2	Teaching staff attempting to include independent study assignments where you seek out information from the Internet and later discuss the validity of the information and the reliability of its source online.	0.438
3.2	**ENCOURAGING MEANINGFUL / CONTEXTUAL LEARNING (USING COMMUNICATIVE TECHNOLOGIES)**	
3.2.1	Teaching staff attempting to encourage you to engage in meaningful learning by relating events that happen in real life to what is being learnt.	0.748
3.2.2	Teaching staff attempting to encourage you to engage in contextual learning by analyzing real-life contexts.	0.685
3.3	**PROVIDING SUPPORT FOR ENCOURAGING ACTIVE LEARNING (USING COMMUNICATIVE TECHNOLOGIES)**	
3.3.1	Teaching staff attempting to link you with professionals who are experts in the field of study so that opinions and ideas can be exchanged.	0.621
4.	**GIVING PROMPT FEEDBACK (USING COMMUNICATIVE TECHNOLOGIES)**	**Factor Loading**
4.1	Teaching staff attempting to restructure their instructional strategy to include problem solving and exercise activities that provide you with immediate feedback.	0.649
4.2	Teaching staff attempting to provide immediate feedback regarding your performance in problem solving and exercise activities.	0.646
4.3	Teaching staff attempting to discuss your strengths and weaknesses in tutorials, quizzes and tests.	0.627
4.4	Teaching staff requiring you to go online to contact them to discuss your academic progress.	0.621
4.5	Teaching staff attempting to provide you with detailed evaluation of your proficiency level at the beginning of the course.	0.515

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Continuation

5.	**EMPHASIZING TIME ON TASK (USING COMMUNICATIVE TECHNOLOGIES)**	**Factor Loading**
5.1	Teaching staff communicating that you are expected to complete your assignments promptly.	0.614
5.2	Teaching staff attempting to deliver coursework, quizzes and assignments online.	0.579
5.3	Teaching staff emphasizing the importance of diligence, sound self-pacing, and scheduling.	0.479
5.4	Teaching staff attempting to make it clear the amount of time that is required to understand complex material.	0.473
6.1	**COMMUNICATING HIGH EXPECTATIONS (USING COMMUNICATIVE TECHNOLOGIES)**	**Factor Loading**
6.1.1	Teaching staff communicating that you are expected to work hard.	0.802
6.1.2	Teaching staff emphasizing the importance of holding high standards for academic achievement.	0.773
6.1.3	Teaching staff attempting to share past experiences, attitudes and values with you.	0.555
6.2	**EVALUATING PROFICIENCY AND VERIFYING PROGRESS (USING COMMUNICATIVE TECHNOLOGIES)**	
6.2.1	Teaching staff attempting to provide you with a pre-test at the beginning of the course.	0.621
6.2.2	Teaching staff attempting to discuss your academic progress by the end of the course.	0.488

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Continuation

7.	**RESPECTING DIVERSE TALENTS AND WAYS OF LEARNING (USING COMMUNICATIVE TECHNOLOGIES)**	**Factor Loading**
7.1	Teaching staff attempting to relate learning activities to your learning style, interests, or background.	0.779
7.2	Teaching staff attempting to identify your learning style, interests, or background at the beginning of the course.	0.730
7.3	Teaching staff attempting to use multiple methods to communicate their own expectations at the beginning of the course.	0.714
7.4	Teaching staff attempting to encourage mastery learning or learning contracts as instructional strategies.	0.678
7.5	Teaching staff attempting to work with you to set challenging objectives for learning.	0.550

In light of the fact that no items were identified to be problematic and required omission perhaps it would be safe to rationalize that the items used in the questionnaire were valid. What more with their index for Cronbach's Alpha reliability analysis being $\alpha = 0.97$ (pilot study) and $\alpha = 0.94$ (research sampling) respectively. Thus, it could be considered that the items used actually measured what they were supposed to measure. Further research utilizing the revised version of the questionnaire would enable a fresh reliability index to be obtained and thus shed more light with regards to how reliable the questionnaire really is.

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5.5 SUGGESTIONS

The researcher would like to suggest that further research be attempted using the revised version of the questionnaire. Not only would a fresh reliability index be obtained, and thus shed more light with regards to how reliable the instrument really is, but fresh research would also facilitate further refinements to the questionnaire to pin-point exact applications and valuations of good practice in teaching and learning.

Additionally, further research could also be attempted to increase the number of participants obtained according to the number of semesters they had experienced online learning and faculty affiliation. Perhaps in the future, a census involving students from all eight faculties to be found on campus would be possible. A research of such proportion would definitely improve on the shortcoming of the sample utilized in this research.

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In light of evidence that UPSI undergraduate students were simply not aware of the Seven Principles for Good Practice in Undergraduate Education, the low utilization level of telephone, text messaging and email by UPSI teaching staff, and that some teaching staff had limited or no learning materials to upload onto MyGuru as online resources, further research is warranted as the situation on campus improves so that a less gloomy picture might be achieved.

It is also suggested that a study be conducted on the teaching staff themselves. This is because the instrument that was originally utilized by this research was known as the Faculty Inventory, and was meant for evaluating teaching staff before it was rephrased, adapted and subsequently translated for student use. If further research were to be conducted on teaching staff, then the perception of both sides would be

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known consequently enabling a more complete picture to be obtained with regards to the effectiveness of instructional strategies for online learning in UPSI.

Lastly, it is suggested that further research could also be attempted to determine if the evaluation of instructors for online classes is influenced by technological problems experienced by students. For example in 2005, Mary K. Tallent-Runnels, William Y. Lan, Wesley Fryer, Julie A. Thomas, Sandi Cooper & Kun Wang conducted a research entitled; *The Relationship between Problems with Technology and Graduate Students' Evaluations of Online Teaching.*

Their study utilized two instruments to collect data. Firstly, a university teaching evaluation scale was used to measure graduate students' perception towards the effectiveness of online instruction. Secondly the questionnaire entitled; *Survey of Student Experiences in Online Courses* was used to gauge technological problems experienced by graduate students and the unfavorable effects these problems might have on the quality of learning they experienced. The result of their research revealed a positive relationship that indicated the frequency of technological problems bumped into actually impeded the learning experience, resulting in adverse evaluation of teaching staff and their courses by graduate students.

5.6 CONCLUSION

When compared to Guidera's original research, the scope and focus of this research is completely different. The scope of Guidera's research was geared towards the perception of teaching staff in a full blown online environment, whereas its focus was towards answering the question of whether online instruction was perceived as

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being more effective than "traditional instruction at meeting the educational objectives outlined in the Seven Principles" (Guidera, 2003).

Contrastingly, the scope of this research was the perception of undergraduate students towards the effectiveness of instructional strategies for online learning in an integrated environment such as UPSI, all the while focusing on gauging student awareness of the Seven Principles. Nonetheless, both have managed to obtain data that sheds more light with regards to the effectiveness of online learning.

In the face of not being aware of the Seven Principles for Good Practice in Undergraduate Education, the low utilization level of telephone, text messaging and email by UPSI teaching staff, and the limited or lack off learning materials to upload onto MyGuru as online resources, UPSI undergraduate students still managed to rate the effectiveness of instructional strategies used to conduct online learning as being effective. Perhaps their responses to the survey's instrumentation were inadvertently influenced by participation in the research itself, technically referred to as the "Hawthorne Effect" (Sandy, 1980). In this instance, the influence may have arisen from inadequate levels of exposure to the use of instructional strategies for online learning and also the innovativeness of the Seven Principles for Good Practice in Undergraduate Education.

On the other hand when contrasted with Arbaugh's and Hwang's research, this research conceptually differs in two ways. Statistically, Arbaugh and Hwang conducted a confirmatory factor analysis using a sample of 191 students "to test for significance of item loadings on each respective factor, relationships among the factors, and fit of hypothesized factor model to the data" (2005). Whereas this research, conducted an exploratory factor analysis using a sample of 397 students in

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an attempt to verify the validity of the intangible constructs that constitute the theoretical framework of the Seven Principles and whether the items used were suitable and actually measured what they were supposed to measure.

This difference may have arisen from the fact that each research obtained its instrumentation from different sources. For example, Arbaugh and Hwang used scales that were developed by Shea, Fredericksen, Pickett and Pelz (2003), *A preliminary investigation of "teaching presence" in the SUNY learning network*, for the three constructs of teaching presence. Whereas this research obtained its instrumentation from Guidera, who in turn obtained Ehrmann, Gamson and Barsi's Faculty Inventory by way of the Teaching, Learning & Technology Group's Flashlight Program.

Conceptually, Arbaugh and Hwang attempted to make use of Chickering and Gamson's first principle of encouraging contact between students and teaching staff to facilitate the manifestation of online learning, via the utilization of Garrison, Anderson and Archer's Community of Inquiry Model. This model suggested that effective online learning was the function of social presence, cognitive presence and teaching presence. Since it was the belief of Arbaugh and Hwang that instructor's must maintain a central role in either a traditional classroom or online environment then the three components of teaching presence, namely instructional design and organization, facilitating discourse and direct instruction must also be employed. They then went about detailing the steps that could be taken when utilizing the three components of teaching presence.

Whereas after verifying the validity of the intangible constructs that constitute the theoretical framework of the Seven Principles for Good Practice in Undergraduate Education, this research went about utilizing the results of the rotated component matrix to reorganize the sequence of items used as the research's instrument. In turn,

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the revised instrument was then proposed for use as instructional strategies that might facilitate the manifestation of online learning. However, further research using the revised version of the questionnaire is warranted.

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APPENDIX A

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UNIVERSITI PENDIDIKAN SULTAN IDRIS
35900 Tanjong Malim, Perak Darul Ridzuan, Malaysia.
Tel: 05-450 6036, 05-450 6038 Fax: 05-458 3607

Syaril Izwann b. Jabar
Fakulti Sains Kognitif dan Pembangunan Manusia,
Universiti Pendidikan Sultan Idris.

Ruj. Tuan :
Ruj. Kami :
Tarikh : 27 Mac 2006

Melalui;

Prof. Madya Dr. Abd. Latif Hj. Gapor
Timbalan Dekan (Akademik)
Fakulti Sains Kognitif dan Pembangunan Manusia,
Universiti Pendidikan Sultan Idris,
35900 Tanjong Malim,
Perak.

Kepada;

Prof. Dr. Md. Noor Salleh,
Prof. Madya Dr. Yusup Hashim,
Prof. Madya Dr. Abdul Rahman Daud,
En. Ismail Abdul Raoh,

Pensyarah
Kursus Rekabentuk Instruksional dan Teknologi (KPT 2063).

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PER: PERMOHONAN UNTUK MENGEDAR SOAL SELIDIK SEMASA WAKTU KULIAH KURSUS KPT 2063

Perkara diatas adalah dirujuk.

Saya, Syaril Izwann b. Jabar, pelajar peringkat Sarjana di dalam bidang Rekabentuk Instruksional dan Teknologi, di Fakulti Sains Kognitif dan Pembangunan Manusia, Universiti Pendidikan Sultan Idris (UPSI) ingin memohon kerjasama tuan supaya membenarkan saya mengedar soal selidik di kalangan para pelajar yang mengikuti Kursus Rekabentuk Instruksional dan Teknologi (KPT 2063), untuk menjayakan penyelidikan saya.

2. Penyelidikan saya bertujuan mengumpul data tentang Persepsi Pelajar UPSI terhadap Keberkesanan Penggunaan Strategi Instruksional untuk Menjayakan Pembelajaran Atas Talian atau 'Online Learning' Berdasarkan Tujuh Prinsip bagi Amalan yang Baik untuk Pendidikan Peringkat Sarjana Muda.

3. Saya ingin meminta jasa baik pihak tuan supaya meluangkan lebih kurang 30 minit masa mengajar untuk saya mengedar (5 minit), pelajar menjawab satu set soal-selidik secara ikhlas (20 minit), dan saya mengumpul semula soal selidik yang telah siap (5 minit).

4. Adalah diharapkan bahawa kerjasama yang di berikan oleh pihak tuan akan membawa manafaat kepada semua warga UPSI kelak.

5. Ingin dimaklumkan bahawa sebarang maklumat yang diberikan oleh pelajar akan dianggap sulit. Identiti para partisipan sama sekali tidak akan didedahkan.

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Kerjasama dari pihak tuan adalah amat-amat dihargai.

Sekian, Terima Kasih.

Yang Benar,

Syarif Izwann b. Jabar
M20041000314

Di sokong oleh;

Prof. Madya Dr. Abd. Latif Hj. Gapor
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APPENDIX B

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Perak.

Ruj. Tuan :
Ruj. Kami :
Tarikh : 27 Mac 2006

Kepada pelajar yang berkenaan,

PER: PERMOHONAN UNTUK MENGAMBIL BAHAGIAN DALAM PENYELIDIKAN

Perkara diatas adalah dirujuk.

Saya, Syaril Izwann b. Jabar, pelajar peringkat Sarjana di dalam bidang Rekabentuk Instruksional dan Teknologi, di Fakulti Sains Kognitif dan Pembangunan Manusia, Universiti Pendidikan Sultan Idris (UPSI) ingin memohon kerjasama dari pelajar-pelajar yang mengikuti Kursus Rekabentuk Instruksional dan Teknologi (KPT 2063), untuk menjayakan penyelidikan saya dengan menjawab soal selidik yang disertakan.

2. Penyelidikan saya bertujuan mengumpul data tentang Persepsi Pelajar UPSI terhadap Keberkesanan Penggunaan Strategi Instruksional untuk Menjayakan Pembelajaran Atas Talian atau 'Online Learning' Berdasarkan Tujuh Prinsip bagi Amalan yang Baik untuk Pendidikan Peringkat Sarjana Muda.

3. Para pelajar di minta meluangkan lebih kurang 20 minit untuk menjawab satu set soal-selidik secara ikhlas. Adalah diharapkan bahawa kerjasama yang di berikan oleh anda akan membawa manafaat kepada semua warga UPSI kelak.

4. Ingin dimaklumkan bahawa sebarang maklumat yang diberikan akan dianggap sulit. Identiti para partisipan sama sekali tidak akan didedahkan.

Kerjasama anda adalah amat-amat dihargai.

Sekian, Terima Kasih.

Yang Benar,

Syaril Izwann b. Jabar
M20041000314

Di sokong oleh;

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PERSEPSI PELAJAR TERHADAP KEBERKESANAN PENGGUNAAN STRATEGI INSTRUKSIONAL UNTUK MENJAYAKAN PEMBELAJARAN ATAS TALIAN BERDASARKAN TUJUH PRINSIP BAGI AMALAN YANG BAIK UNTUK PENDIDIKAN PERINGKAT SARJANA MUDA DI UNIVERSITI PENDIDIKAN SULTAN IDRIS (UPSI)

Borang soal selidik ini bertujuan mengumpul data tentang pemerhatian pelajar terhadap tahap keberkesanan penggunaan strategi instruksional untuk menjayakan pembelajaran atas talian atau 'online learning.' Semua maklumat yang diberikan akan dianggap sulit. Identiti para partisipan tidak akan didedahkan. Dengan melengkapkan soal selidik ini, anda bersetuju untuk mengambil bahagian di dalam tinjauan ini.

a) Adakah anda tahu tentang 7 Prinsip bagi Amalan yang Baik untuk Pendidikan Peringkat Sarjana Muda oleh Chickering & Gamson?
   ☐ Ya
   ☐ Tidak

b) Jantina:
   ☐ Lelaki
   ☐ Perempuan

c) Kaum:
   ☐ Melayu
   ☐ Cina
   ☐ India
   ☐ Lain-lain

d) Semester:
   ☐ 5
   ☐ 6

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e) Fakulti:
   ☐ Bahasa
   ☐ Sains Sukan
   ☐ Seni & Musik
   ☐ Sains & Teknologi
   ☐ Perniagaan & Ekonomi
   ☐ Sains Sosial & Kemanusiaan
   ☐ Teknologi Maklumat & Komunikasi
   ☐ Sains Kognitif & Pembangunan Manusia

f) Sila tandakan kotak yang mewakili peralatan teknologi komunikasi dan sumber atas talian yang digunakan oleh tenaga pengajar dalam menyampaikan strategi instruksional untuk menjayakan pembelajaran atas talian? Hanya tandakan peralatan yang digunapakai dan abaikan yang lain.
   ☐ Telefon & Mesej Ringkas (SMS)
   ☐ Emel
   ☐ Forum (MyGuru)
   ☐ Bahan Pembelajaran (MyGuru)
   ☐ Tiada yang digunakan

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Sila nyatakan dengan jujur persepsi anda terhadap tahap keberkesanan penggunaan strategi instruksional untuk menjayakan pembelajaran atas talian atau 'online learning.' Sila gunakan skala yang disediakan. Isikan kotak di hujung kenyataan dengan angka yang telah anda pilih.

Tidak Berkesan	Kurang Berkesan	Berkesan	Agak Berkesan	Sangat Berkesan
1	2	3	4	5

1. MENGGALAKKAN INTERAKSI ANTARA PELAJAR DENGAN TENAGA PENGAJAR
(MENGGUNAKAN TEKNOLOGI KOMUNIKASI)

Apakah persepsi anda terhadap keberkesanan strategi instruksional berikut;

1.1	Tenaga pengajar berusaha mengeratkan suasana interaksi yang tidak formal dengan anda.	
1.2	Tenaga pengajar berusaha berkomunikasi dengan anda.	
1.3	Tenaga pengajar berusaha bertindak sebagai mentor kepada anda.	
1.4	Tenaga pengajar berusaha menghubungi anda apabila anda ketinggalan dalam pelajaran untuk membincangkan jadual atau gaya pembelajaran serta lain-lain komitmen.	
1.5	Tenaga pengajar berusaha menyediakan bahan atau latihan tambahan untuk anda yang mempunyai pengetahuan latar atau kemahiran teras yang kurang memuaskan.	

2. MEMUPUK KERJASAMA DI KALANGAN PELAJAR
(MENGGUNAKAN TEKNOLOGI KOMUNIKASI)

Apakah persepsi anda terhadap keberkesanan strategi instruksional berikut;

2.1	Tenaga pengajar menjanjikan markah tambahan untuk anda yang turut serta di dalam aktiviti atas talian.	
2.2	Tenaga pengajar berusaha menggunakan IMS (Integrated Management System) untuk memupuk kumpulan belajar atau projek di dalam kursus anda.	
2.3	Tenaga pengajar berusaha menggalakkan anda berbincang secara terbuka dengan rakan-rakan melalui forum mengenai minat dan latarbelakang.	
2.4	Tenaga pengajar berusaha menggalakkan anda menerangkan ide atau konsep yang sukar kepada ahli kumpulan belajar ketika di atas talian.	
2.5	Tenaga pengajar berusaha menggalakkan anda berkerjasama dengan rakan-rakan dalam menjalankan projek.	

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Tidak Berkesan	Kurang Berkesan	Berkesan	Agak Berkesan	Sangat Berkesan
1	2	3	4	5

3. MENGGALAKKAN PEMBELAJARAN SECARA AKTIF
(MENGGUNAKAN TEKNOLOGI KOMUNIKASI)

Apakah persepsi anda terhadap keberkesanan strategi instruksional berikut;

3.1	Tenaga pengajar berusaha menggalakkan anda belajar secara 'contextual' dengan menganalisa contoh yang diperolehi dari konteks kehidupan sebenar.	
3.2	Tenaga pengajar berusaha menggalakkan anda belajar secara 'meaningful' dengan mengkaitkan apa yang berlaku di dalam kehidupan seharian dengan apa yang sedang dipelajari.	
3.3	Tenaga pengajar berusaha memasukkan unsur-unsur pembelajaran kendiri di dalam tugasan di mana anda perlu melayari Internet untuk memperolehi maklumat yang kesahan dan ketekalan sumbernya akan diperbincangkan kemudian secara atas talian.	
3.4	Tenaga pengajar berusaha menggalakkan anda meluahkan pendapat melalui forum apabila tidak memahami sesuatu subjek.	
3.5	Tenaga pengajar berusaha menghubungkan anda dengan profesional yang pakar dalam bidang yang dipelajari untuk membolehkan pertukaran pendapat dan ide.	

4. MEMBERI MAKLUMBALAS YANG SEGERA
(MENGGUNAKAN TEKNOLOGI KOMUNIKASI)

Apakah persepsi anda terhadap keberkesanan strategi instruksional berikut;

4.1	Tenaga pengajar berusaha memberi butiran penilaian terperinci berkenaan tahap kecekapan (proficiency level) anda pada permulaan kursus.	
4.2	Tenaga pengajar berusaha menyusun semula strategi instruksional dengan memasukkan aktiviti latihan dan penyelesaian masalah yang membolehkan anda menerima maklumbalas dengan segera.	
4.3	Tenaga pengajar berusaha menyediakan maklumbalas segera mengenai prestasi anda di dalam aktiviti latihan dan penyelesaian masalah.	
4.4	Tenaga pengajar memerlukan anda menghubunginya secara atas talian untuk membincangkan kemajuan akademik anda.	
4.5	Tenaga pengajar berusaha membincangkan tentang kekuatan dan kelemahan anda semasa tutorial, kuiz dan ujian.	

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Tidak Berkesan	Kurang Berkesan	Berkesan	Agak Berkesan	Sangat Berkesan
1	2	3	4	5

5. MENEKANKAN PERUNTUKAN MASA BAGI MELAKUKAN TUGAS ATAS TALIAN
(MENGGUNAKAN TEKNOLOGI KOMUNIKASI)

Apakah persepsi anda terhadap keberkesanan strategi instruksional berikut;

5.1	Tenaga pengajar berusaha menyampaikan kerja kursus, kuiz dan tugasan secara atas talian.	
5.2	Tenaga pengajar menekankan pentingnya ketekunan, keupayaan kendiri dan penjadualan kepada anda.	
5.3	Tenaga pengajar berusaha menyatakan dengan jelas jumlah masa yang diperlukan untuk mempelajari bahan yang kompleks.	
5.4	Tenaga pengajar memaklumkan kepada anda yang setiap tugasan harus disiapkan dengan segera.	

6. MENYAMPAIKAN EKSPEKTASI YANG TINGGI
(MENGGUNAKAN TEKNOLOGI KOMUNIKASI)

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Apakah persepsi anda terhadap keberkesanan strategi instruksional berikut;

6.1	Tenaga pengajar berusaha berkongsi nilai-nilai murni, sikap dan pengalaman lampau dengan anda.	
6.2	Tenaga pengajar berusaha menyediakan pra-ujian untuk anda pada permulaan kursus.	
6.3	Tenaga pengajar menekankan pentingnya berpegang kepada tahap kecemerlangan akademik yang tinggi.	
6.4	Tenaga pengajar memaklumkan yang anda dikehendaki berkerja keras.	
6.5	Tenaga pengajar berusaha membincangkan kemajuan akedemik anda di penghujung kursus.	

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Tidak Berkesan	Kurang Berkesan	Berkesan	Agak Berkesan	Sangat Berkesan
1	2	3	4	5

7. MENGHORMATI KEPELBAGAIAN BAKAT & CARA BELAJAR
(MENGGUNAKAN TEKNOLOGI KOMUNIKASI)

Apakah persepsi anda terhadap keberkesanan strategi instruksional berikut;

7.1	Tenaga pengajar berusaha bekerjasama dengan anda untuk menetapkan matlamat pembelajaran yang mencabar bagi anda.	
7.2	Tenaga pengajar berusaha menggunakan pelbagai teknik komunikasi bagi menyampaikan ekspektasi mereka sendiri pada awal kursus.	
7.3	Tenaga pengajar berusaha mengenalpasti gaya pembelajaran, minat atau latarbelakang anda pada permulaan kursus.	
7.4	Tenaga pengajar berusaha mengaitkan aktiviti pembelajaran dengan gaya pembelajaran, minat atau latarbelakang anda.	
7.5	Tenaga pengajar berusaha menggalakkan 'mastery learning' atau 'learning contracts' sebagai strategi instruksional.	

Terima kasih atas kerjasama anda.

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STUDENT PERCEPTION TOWARDS THE EFFECTIVENESS OF INSTRUCTIONAL STRATEGIES USED TO CONDUCT ONLINE LEARNING BASED ON THE SEVEN PRINCIPLES FOR GOOD PRACTICE IN UNDERGRADUATE EDUCATION IN SULTAN IDRIS UNIVERSITY OF EDUCATION (UPSI)

This questionnaire is designed to gather data, regarding student observation concerning the degree of success to which instructional strategies are being effectively used to conduct online learning in UPSI. All information provided will remain confidential. The identity of the participants will not be disclosed. By completing this questionnaire you are consenting to participating in this survey.

a) Are you aware of Chickering & Gamson's 7 Principles for Good Practice in Undergraduate Education?
- ☐ Yes
- ☐ No

b) Gender:
- ☐ Male
- ☐ Female

c) Race:
- ☐ Malay
- ☐ Chinese
- ☐ Indian
- ☐ Others

d) Semester:
- ☐ 5
- ☐ 6

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e) Faculty:
- ☐ Language
- ☐ Arts and Music
- ☐ Sports Science
- ☐ Science & Technology
- ☐ Business & Economics
- ☐ Social Science & Humanities
- ☐ Information Technology & Communication
- ☐ Cognitive Sciences & Human Development

f) Please check the box that indicates the communicative technology and online resource utilized by teaching staff to convey instructional strategies for online learning. Only mark those that are utilized and ignore the others.
- ☐ Telephone & Short Messages (SMS)
- ☐ Email
- ☐ Forum (MyGuru)
- ☐ Learning Materials (MyGuru)
- ☐ None are utilized

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Please truthfully rate your perception, concerning the degree of success to which instructional strategies are being effectively used to conduct online learning in UPSI. Use the following scale as a guide to express your perception. Fill in the box at the end of each statement with the figure that you have selected.

Ineffective	Less Effective	Effective	Marginally Effective	Considerably Effective
1	2	3	4	5

1. ENCOURAGING INTERACTION BETWEEN STUDENTS AND TEACHING STAFF
(USING COMMUNICATIVE TECHNOLOGIES)

What is your perception towards the effectiveness of the following instructional strategies;

1.1	Teaching staff attempting to facilitate informal interaction with you.	
1.2	Teaching staff attempting to communicate with you.	
1.3	Teaching staff attempting to serve as a mentor to you.	
1.4	Teaching staff attempting to contact you when you have fallen behind to discuss study habits, schedules, and other commitments.	
1.5	Teaching staff attempting to provide extra material or exercises if you lack the essential background knowledge or skills.	

2. DEVELOPING RECIPROCITY AND COOPERATION AMONG STUDENTS
(USING COMMUNICATIVE TECHNOLOGIES)

What is your perception towards the effectiveness of the following instructional strategies;

2.1	Teaching staff promising extra credit to you for participating in online activities.	
2.2	Teaching staff attempting to utilize the IMS (Integrated Management System) to nurture learning groups or project teams in your course.	
2.3	Teaching staff attempting to get you to discuss openly with colleagues through a forum about interests and backgrounds.	
2.4	Teaching staff attempting to get you to explain difficult ideas or concepts to others within an online learning group.	
2.5	Teaching staff attempting to get you and your colleagues to work on projects together.	

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Ineffective	Less Effective	Effective	Marginally Effective	Considerably Effective
1	2	3	4	5

3. ENCOURAGING ACTiVE LEARNING
(USING COMMUNICATIVE TECHNOLOGIES)

What is your perception towards the effectiveness of the following instructional strategies;

3.1	Teaching staff attempting to encourage you to engage in contextual learning by analyzing real-life contexts.	
3.2	Teaching staff attempting to encourage you to engage in meaningful learning by relating events that happen in real life to what is being learnt.	
3.3	Teaching staff attempting to include independent study assignments where you seek out information from the Internet and later discuss the validity of the information and the reliability of its source online.	
3.4	Teaching staff attempting to encourage you to express yourself when you don't understand a particular subject matter.	
3.5	Teaching staff attempting to link you with professionals who are experts in the field of study so that opinions and ideas can be exchanged.	

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4. GIVING PROMPT FEEDBACK
(USING COMMUNICATIVE TECHNOLOGIES)

What is your perception towards the effectiveness of the following instructional strategies;

4.1	Teaching staff attempting to provide you with detailed evaluation of your proficiency level at the beginning of the course.	
4.2	Teaching staff attempting to restructure their instructionai strategy to include problem solving and exercise activities that provide you with immediate feedback.	
4.3	Teaching staff attempting to provide immediate feedback regarding your performance in problem solving and exercise activities.	
4.4	Teaching staff requiring you to go online to contact them to discuss your academic progress.	
4.5	Teaching staff attempting to discuss your strengths and weaknesses in tutorials, quizzes and tests.	

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Ineffective	Less Effective	Effective	Marginally Effective	Considerably Effective
1	2	3	4	5

5. EMPHASIZING TIME ON TASK
(USING COMMUNICATIVE TECHNOLOGIES)

What is your perception towards the effectiveness of the following instructional strategies;

5.1	Teaching staff attempting to deliver coursework, quizzes and assignments online.	
5.2	Teaching staff emphasizing the importance of diligence, sound self-pacing, and scheduling.	
5.3	Teaching staff attempting to make it clear the amount of time that is required to understand complex material.	
5.4	Teaching staff communicating that you are expected to complete your assignments promptly.	

6. COMMUNICATING HIGH EXPECTATIONS
(USING COMMUNICATIVE TECHNOLOGIES)

What is your perception towards the effectiveness of the following instructional strategies;

6.1	Teaching staff attempting to share past experiences, attitudes and values with you.	
6.2	Teaching staff attempting to provide you with a pre-test at the beginning of the course.	
6.3	Teaching staff emphasizing the importance of holding high standards for academic achievement.	
6.4	Teaching staff communicating that you are expected to work hard.	
6.5	Teaching staff attempting to discuss your academic progress by the end of the course.	

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Ineffective	Less Effective	Effective	Marginally Effective	Considerably Effective
1	2	3	4	5

7. RESPECTING DIVERSE TALENTS AND WAYS OF LEARNING
(USING COMMUNICATIVE TECHNOLOGIES)

What is your perception towards the effectiveness of the following instructional strategies;

7.1	Teaching staff attempting to work with you to set challenging objectives for learning.	
7.2	Teaching staff attempting to use multiple methods to communicate their own expectations at the beginning of the course.	
7.3	Teaching staff attempting to identify your learning style, interests, or background at the beginning of the course.	
7.4	Teaching staff attempting to relate learning activities to your learning style, interests, or background.	
7.5	Teaching staff attempting to encourage mastery learning or learning contracts as instructional strategies.	

Thank you for your cooperation.

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